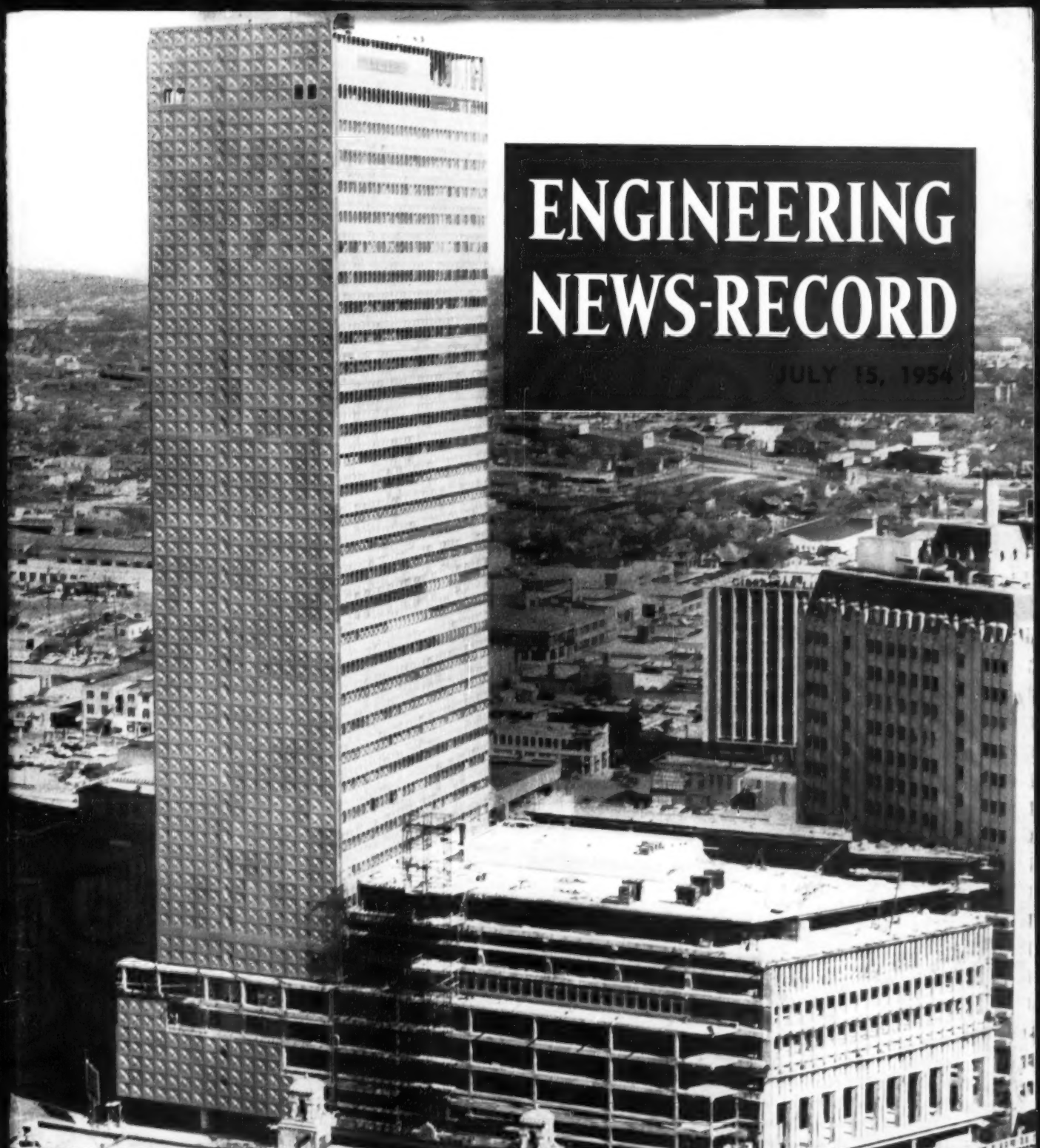

ENGINEERING NEWS-RECORD

JULY 15, 1954

Aluminum-clad skyscraper in Dallas boasts the lightest insulated exterior wall to date (p. 30)

Floating seaplane dock is prestressed

Bridge moved end wise for factory expansion

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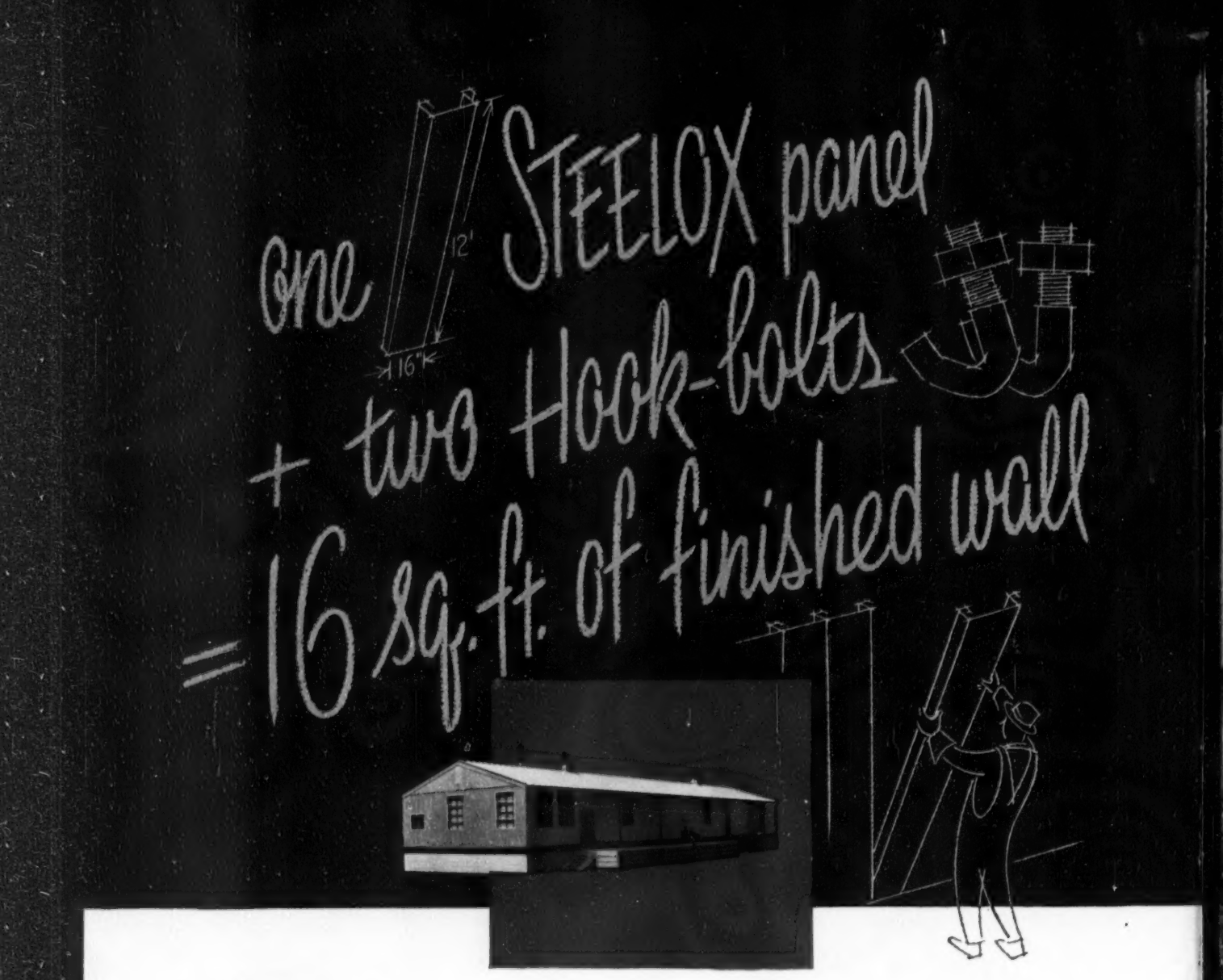

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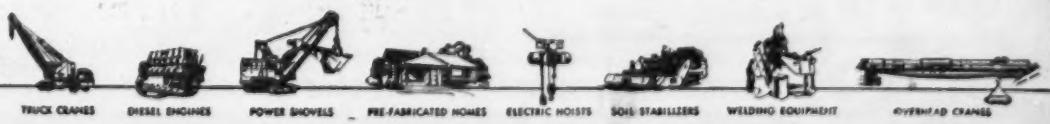

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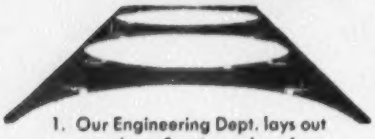

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Robert F. Boger
Publisher

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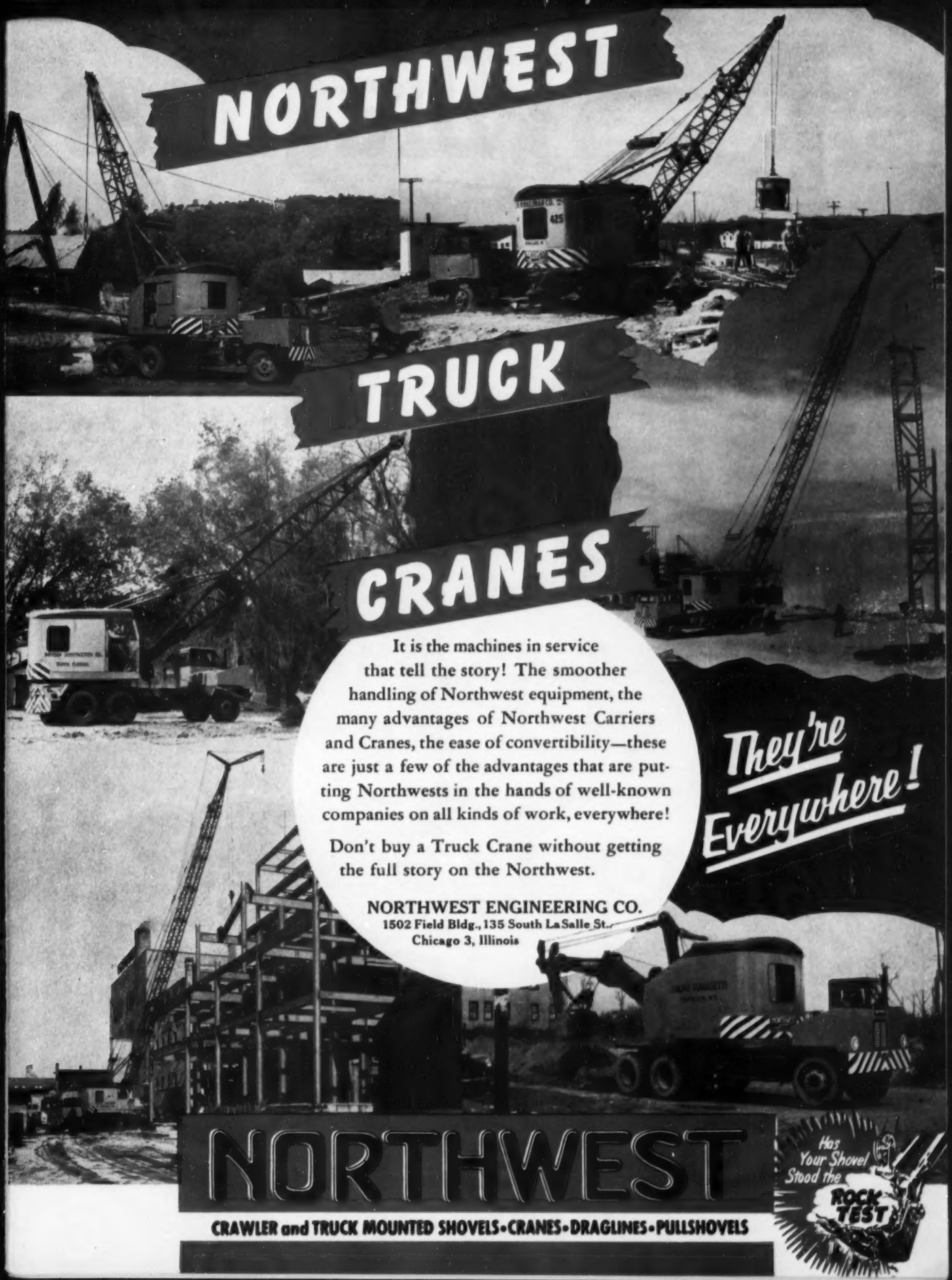
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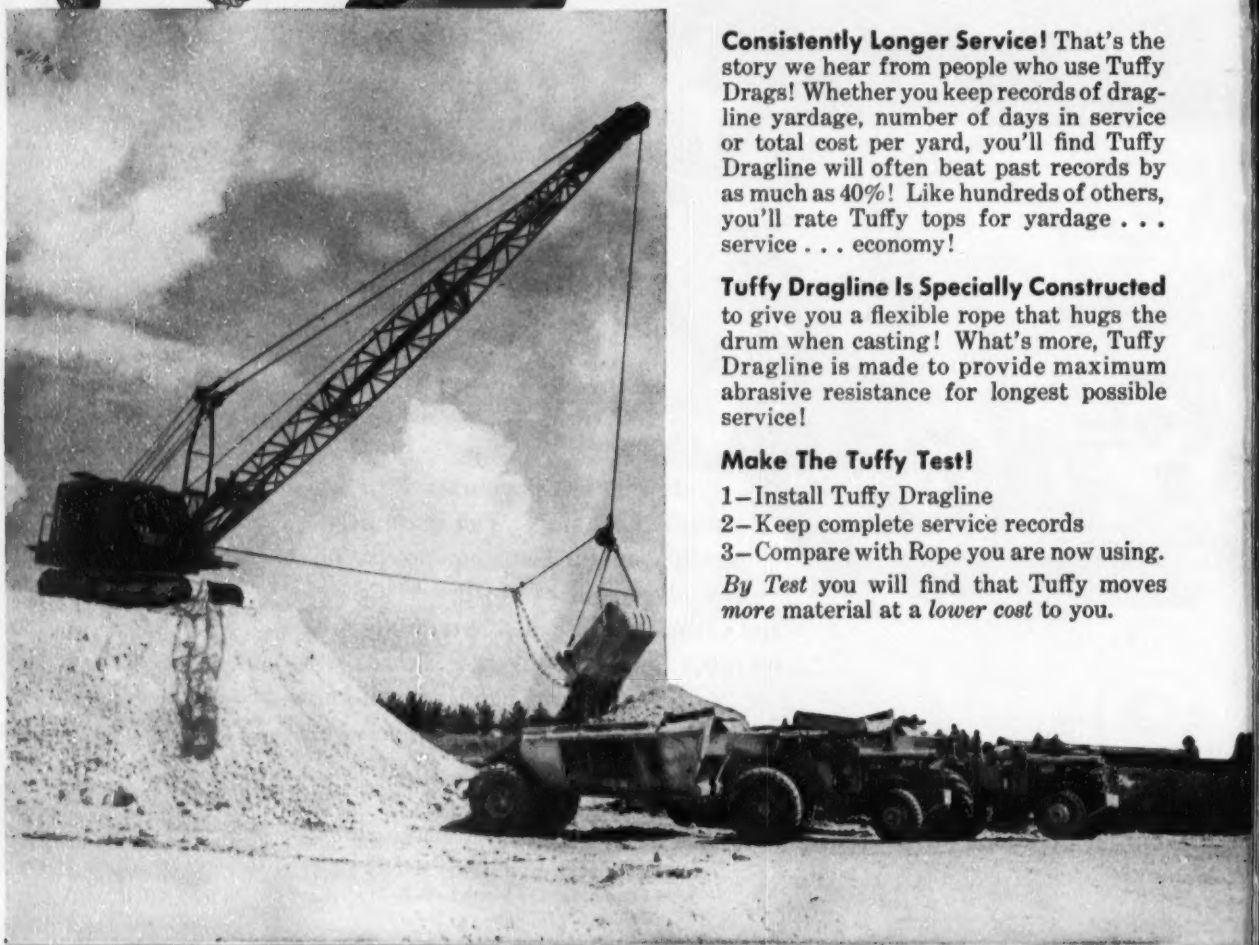

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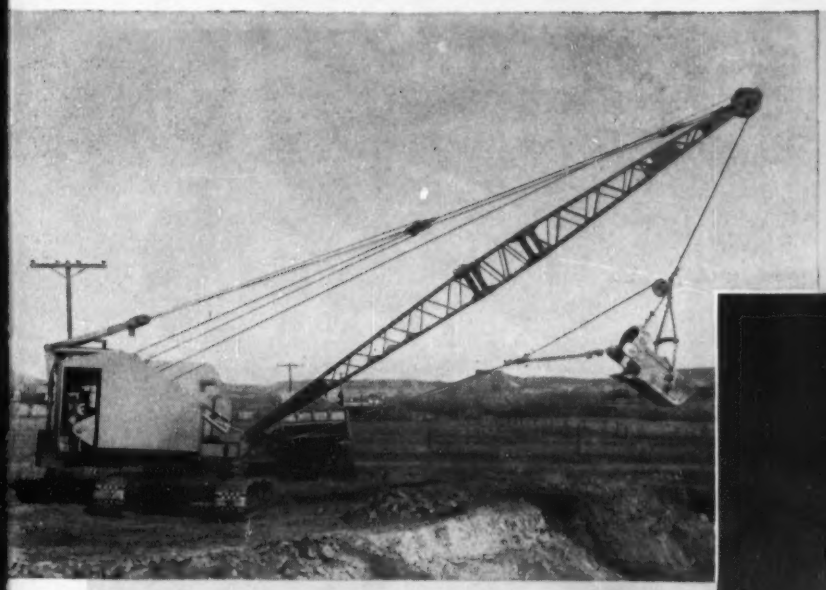

Aggregate material is where you find it. Dragging it up over the side of a pit exposes the dragline rope to plenty of abrasive wear. One of the features of TUFFY DRAGLINE is an outer construction which *resists abrasive action* to the utmost.

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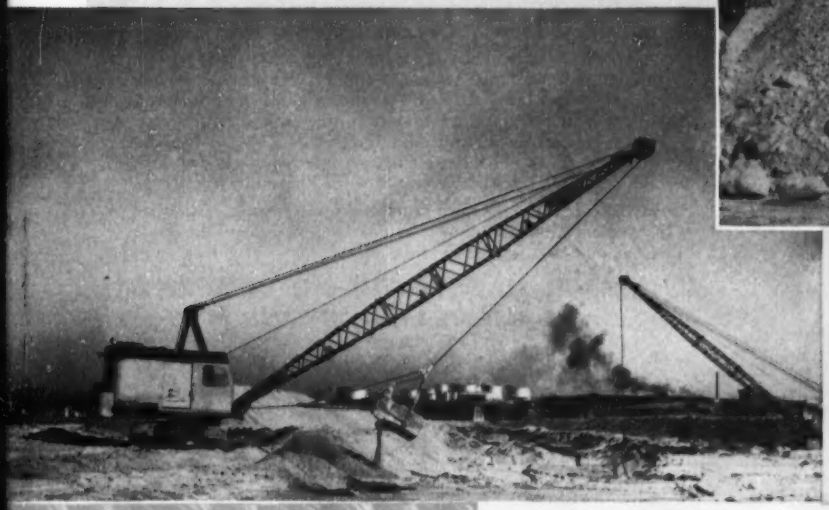

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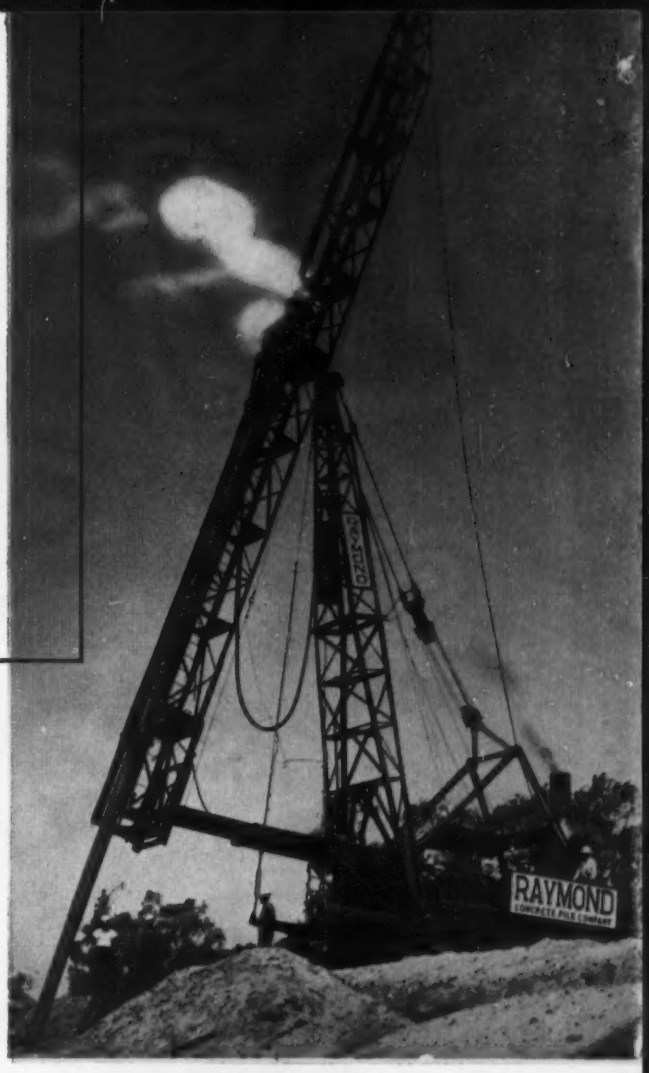

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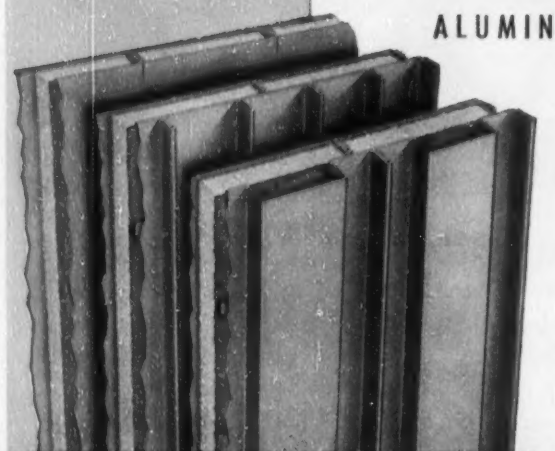

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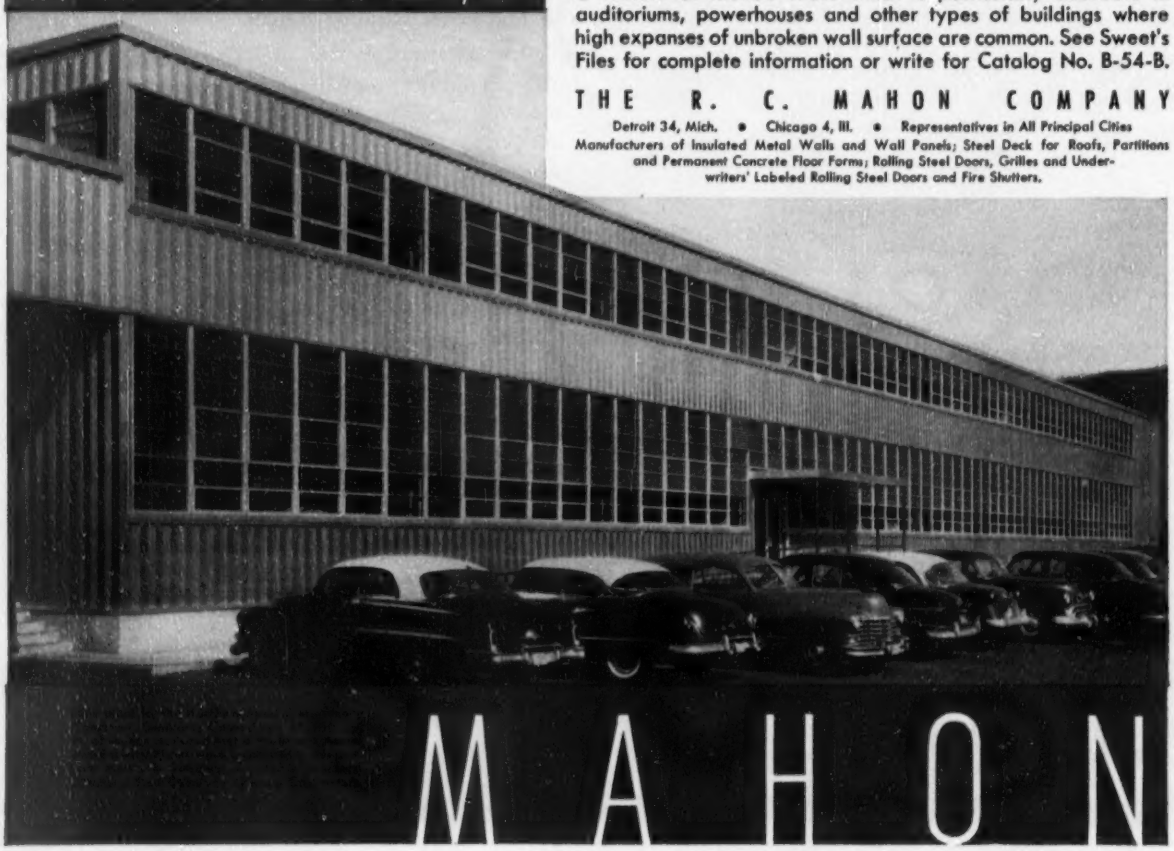

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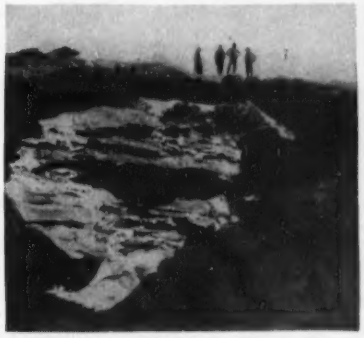
SURVEYORS (and transitman's wife) perch on natural bridge discovered in southern Utah by Rathbone party.



SOFT ROCK evidently broke away from bridge's hard stratum, forming a box canyon. Span is about 90 ft.

Surveyor's souvenir

SIR: Recently while looking through a storage locker that I packed before going overseas in World War I, I found several snapshots taken in 1917 on public land survey work in a lonely part of southern Utah.

A few of the pictures showed a natural bridge, which probably had not been seen previously (or since?) by man. So far as we could learn, the bridge was not known even to the Indians.

My survey party is shown in the enclosed photos. You will probably wonder what a woman was doing in this wild country. She was the wife of the transitman, visiting the camp. Although accustomed to roughing it she had to be helped with a rope to get up to the rimrock to see the bridge.

The formation is a true bridge, span-

(*Continued on page 12*)

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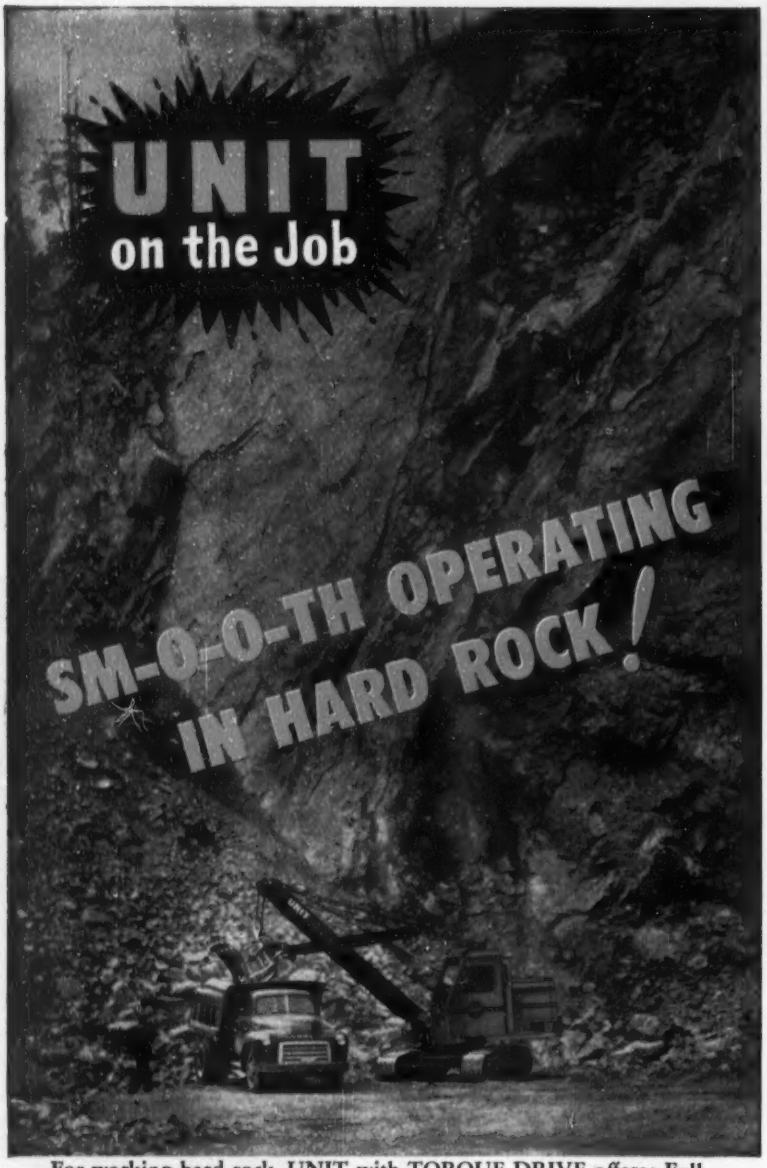

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READER COMMENT

ning a kind of box-canyon or break in the rim of a mesa about 1,000 ft above the lower bench. The location is about 50 miles east of Kanab, Kane County, Utah, and about 15 miles north of the Arizona line.

As I remember, the clear span was about 90 ft; width about 8 or 9 ft, and minimum thickness 30 to 36 in. Rocks dropped from the center would strike ledges some 200 ft below. If the span had been farther out on the rim, the drop would have been closer to 500 ft.

The pictures show that the bridge is almost a true beam, with some cantilevering at the abutments. A large portion has a shallow, approximately rectangular cross-section. The stratum from which the bridge is formed is a fairly hard sandstone, with softer stratifications below.

Some approximation of the stresses in the stone could be made with more dimensional details. If we had made any such calculations at the time, I doubt whether we would have dared to venture out on the span to build the cairn for a triangulation point.

However, I made sure only one person was walking at one time on the span, to minimize effect of any periodic vibration synchronizing with the bridge's natural frequency.

We attached no great importance to the discovery at the time—that country abounds in freak formations. The now famous Bryce Canyon, then hardly known to the "outside" world, lies about 40 miles to the northwest. This bridge was apparently formed by a large section of the rimrock mesa wall caving in around it, rather than plain erosion from wind and weathering.

I wonder if the bridge still stands.

THOS. C. RATHBONE
Brooklyn, N. Y.

CALENDAR

Conference on new developments in engineering design, Virginia Polytechnic Institute, Blacksburg, Va., Aug. 4-6.

National Council of State Boards of Engineering Examiners, annual meeting, Hotel Saint Paul, St. Paul, Minn., Aug. 26-28.

New England Water Works Assn., Poland Spring, Me., Oct. 4-6.

National Highway Conference of County Engineers and Officials, ARBA, Deshler-Hilton Hotel, Columbus, Ohio, Sept. 13-15.

Society for Experimental Stress Analysis and International Congress and Exposition: Bellevue-Stratford Hotel, Philadelphia, Pa., Sept. 21-23.

Southeastern Association of State Highway Officials, annual meeting, Andrew Jackson Hotel, Nashville, Tenn., Sept. 28-30.

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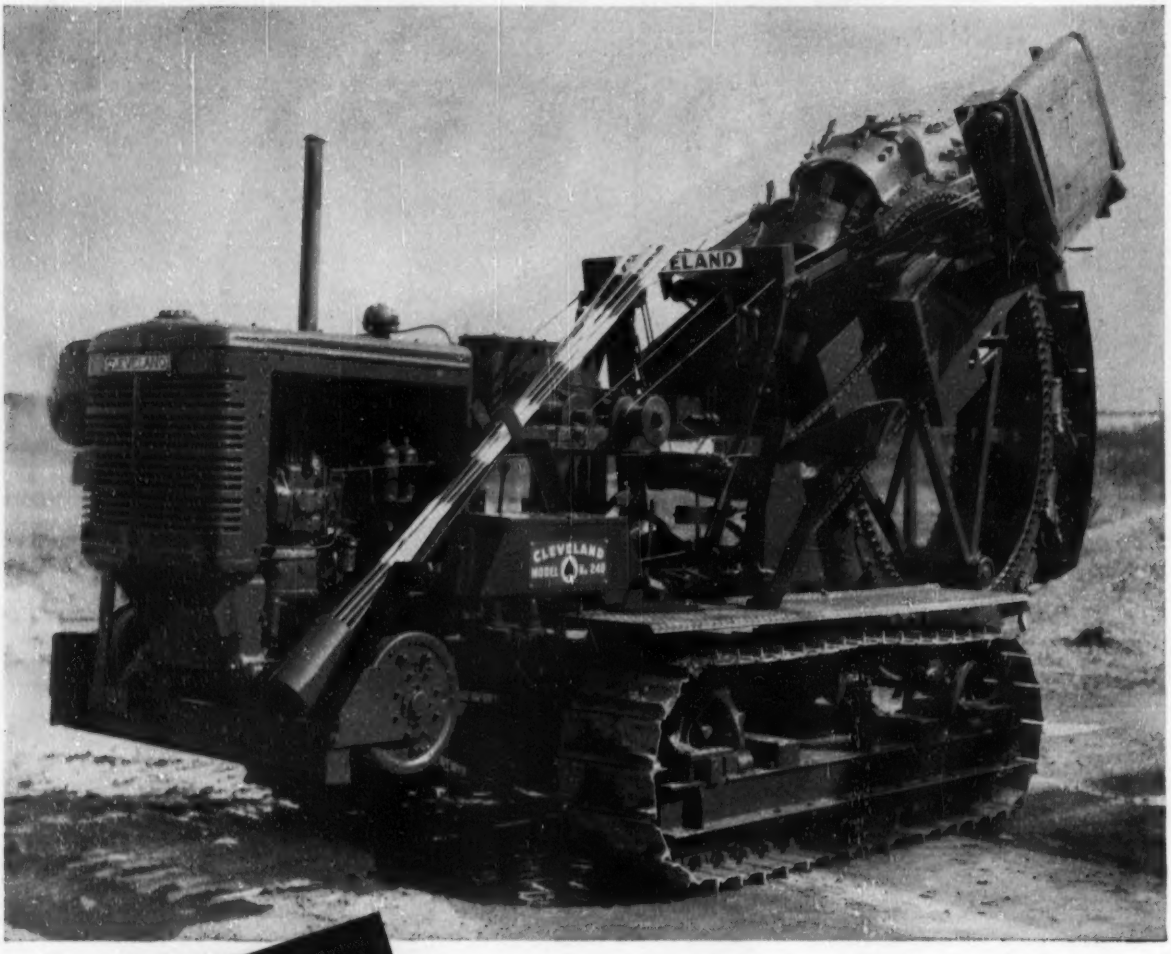

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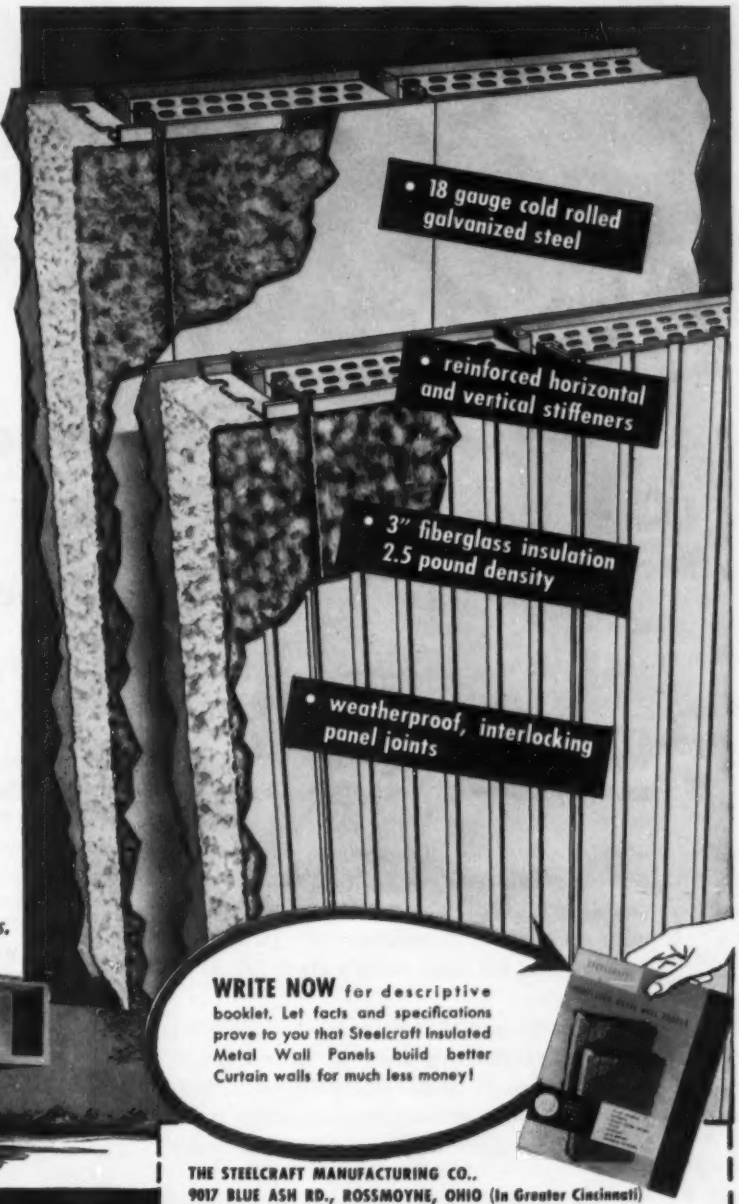
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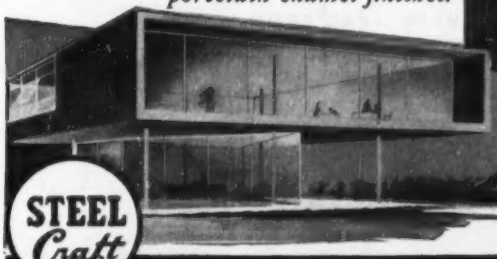

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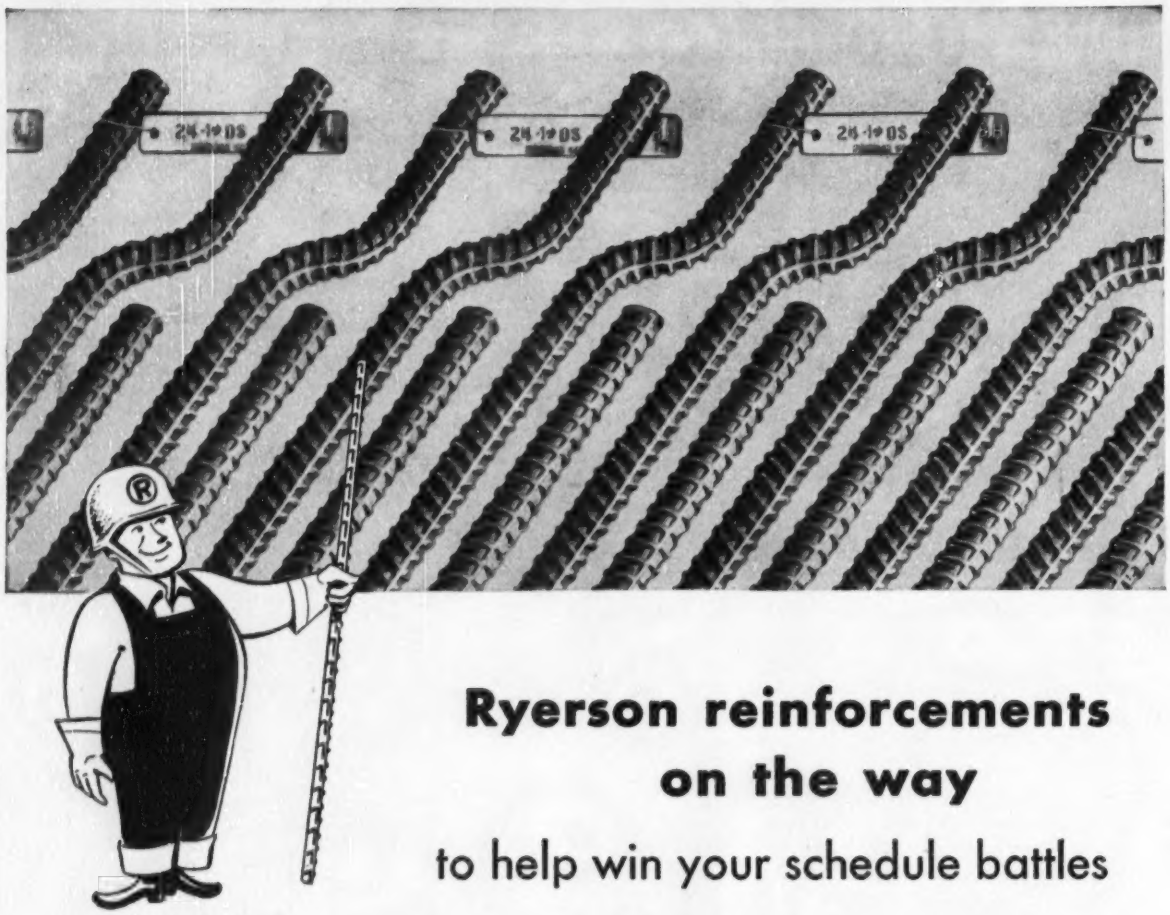

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

BATCH PLANT BACK—Powerhouse substructure contractors at The Dalles Dam in Oregon surprised nearly everyone by getting a new and bigger concrete batch plant into operation in half the time estimated to replace one that collapsed.

But there's still no official word as to why the original plant failed so suddenly late in May (ENR June 10, p. 26). The eight-contractor combine, the Noble Co. (manufacturer) and the Corps of Engineers have made separate studies, which reportedly don't agree.

The new plant (a Johnson) had been used at Detroit Dam on the Santiam River. Its capacity is so much greater than the old one (four 4-cu yd mixers against three) that contractors expect to catch up with their work and complete their 500,000-cu yd schedule ahead of a Sept. 1, 1955 deadline.

BRIDGE HINT—Evidence of how seriously New York groups are working on plans for a $70-million bridge across The Narrows (separating upper and lower New York bays) is contained in the notice of extension of time for the structure released by the Army Engineers.

The time limit for starting construction (ENR May 13, p. 17) has been re-set to May 24, 1956, on the promise of the Triborough Bridge & Tunnel Authority and Port of New York Authority that they'll complete feasibility studies by November of this year.

WAGES LEVELING?—Salaries for newly fledged engineers are leveling off, after spiraling upward for more than 10 years, says Illinois Institute of Technology.

Surveying its June graduates, Tech found they got an average starting salary of $363 per month—$1 more than 1953 June graduates, $10 less than January 1954 grads.

FAMILY MEN—But whether salaries go up or down, engineers can boast that they're good marriage risks, Illinois Tech points out.

Checking graduates in classes of '29, '34, '39, '44 and '49, researchers reported: 90% of the classes of '39, '44 and '49 were married, none divorced; only one divorce was reported for '29; and only 2% of '34 were divorced.

AIR ACADEMY UP?—Nobody is going to be much surprised if the Air Academy at Colorado Springs (ENR July 1, p. 21) finally costs twice the $127-million figure often (but not officially) mentioned as a price tag.

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Denison Park-It-Yourself Garage in Downtown Indianapolis

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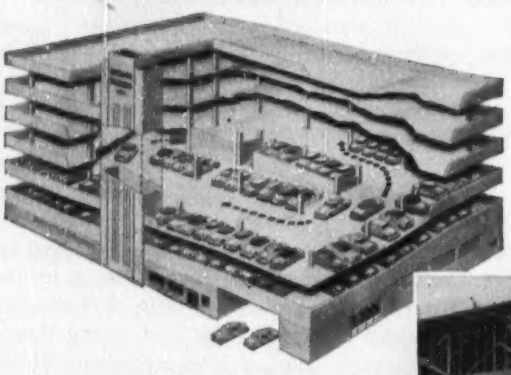

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WASHINGTON OBSERVER

The Administration will make political hay with its "new public works policy" and claim that it's a real step ahead of what the Democrats have had to offer down through the years.

Claim is that public works will be built better and sooner if given the right climate in Washington and the right kinds of aids from the federal agencies. Republicans say Congress and the federal budget won't permit many of these projects to be built on a 100% federal basis—but claim they have devised the way to get the projects underway despite these obstacles.

•

Local participation in hydro-power projects is a prime example (see page 21). Money for Coosa River Dam couldn't be gotten from Congress—but Alabama Power Co. could finance the project immediately.

Post Office and General Services lease-purchase program (see page 22) holds down federal outlays but gets the construction going by giving non-federal groups a chance to cut themselves in.

Early allocation of federal matching funds under the new highway law gives states a leg up on getting construction going. This idea may be advanced even further to push funds out for projects in fiscal 1957 and 1958 by asking Congress for a brand new highway authorization law next year.

•

Key part of the new policy is stepped-up planning on all public works—now being handled in a special office in the Council of Economic Advisors under Gen. John S. Bragdon, retired from the Army Engineers.

Bragdon has about completed an inventory of federal projects in the planning stage: type of construction, location, date they could be started, etc.

Next step is a similar catalog of state and local projects, which would be more of a current appraisal of types of projects and volume of work involved, rather than a project-by-project list. Federal aid could mean a lot in getting a national picture of status of these plans.

•

Congress is moving at a fast clip on some specific programs:

School construction funds totaling $500 million may be voted yet this session. The Senator Labor Committee has okayed such a two-year program. States are to provide $60 for every $40 of federal funds.

The President already has signed into law a $182-million program for convalescent hospitals, nursing homes and chronic disease centers—part of his health program. These programs will be financed by grants-in-aid over a three-year period, and are in addition to $75 million voted as matching funds to non-federal areas for hospital construction.

•

Military construction: Senate-house conferees are meeting over an authorization bill—to square the Senate's $839-million figure with the House's $877-million version. Congress also is finishing up on an appropriations measure to pay for the projects.

A rider may cause some delay in conference. Sen. Maybank got the Senate to prohibit use of any military funds to help out parts of the country that are in economic distress. Maybank's interest is the southern cotton industry, but the rider would hit construction, too. The outcome of the rider is uncertain.

•

The atomic strike settlement may bring about some new policy on how to handle labor on atomic construction and production projects.

But what's important is this: The dispute raises the question as to whether employees on AEC projects should be considered government workers without the right to strike.

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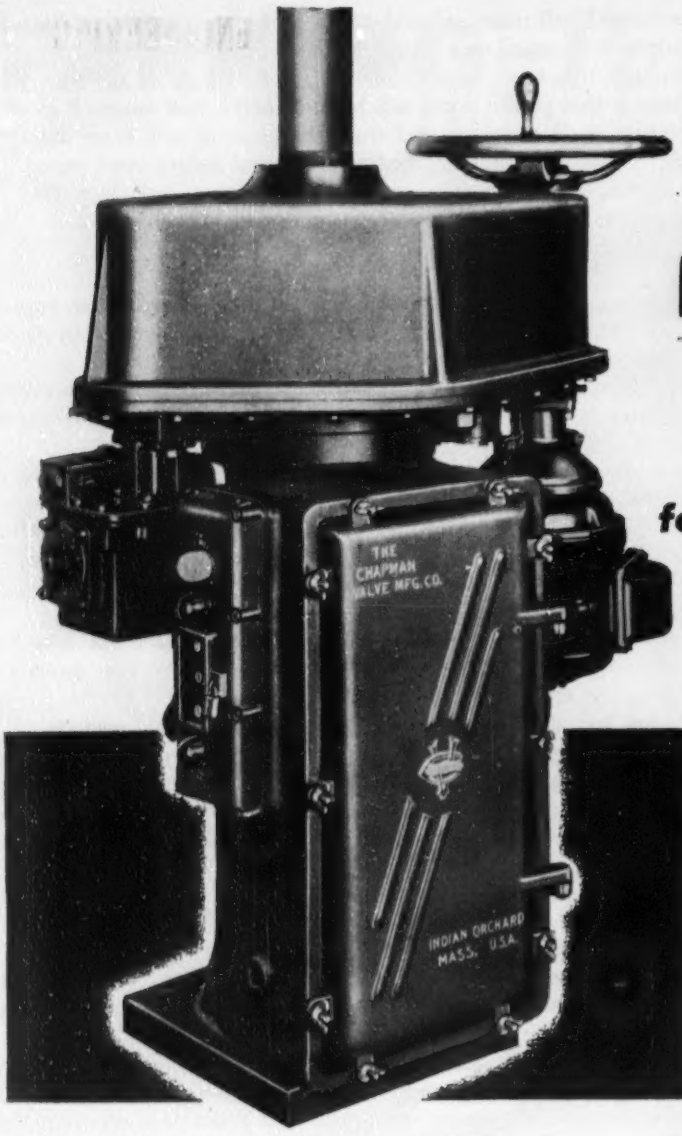

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Speed-up in power construction on the way

Administration efforts to boost private power investment and federal-local partnership projects begin to pay off

Administration power policy is beginning to show results that may well add up to substantially increased construction of hydroelectric power facilities over the next few years.

The Administration set out a year and a half ago to cut federal spending for power development and encourage state or local bodies and private industry to move in with their own funds. This is what is happening now, and there are indications that the combined total of all these expenditures for power development will soon outstrip the old federal-dominated power development programs of recent years.

Local groups and electric companies have been flocking to Washington to get clearance for their own power development plans. And Congress has cooperated with the Administration to clear the way for private investment where federal funds might not have been available for years.

• **Signposts of new policy**—Here are some of the signs that Administration power policy is beginning to pay off:

• Local power groups—public and private—have filed for Federal Power Commission preliminary permits on proposed projects costing well over $1 billion. In terms of capacity involved, pending applications for FPC licenses jumped a whopping 42% from the first to the last six months of last year and are expected to increase at an even faster rate this year.

• Congress has cleared for construction by private industry a $100-million power development on the Coosa River in Alabama. An FPC license is still needed.

• Congress has voted to let the federal government contribute funds for the flood control features of the Markham Ferry project in Oklahoma which is to be built by Oklahoma's Grand River Dam Authority.

• Several other measures which would provide federal partnership or federal approval for locally financed projects were pending before Congress at the beginning of this week. Projects involved are:

The $364-million Priest Rapids project in Washington, which would be built by a public utility district with possible contributions from the federal government.

The $37.4-million Cougar project in Oregon, for which the city of Eugene proposes to build the $10-million power features.

• The $58-million Green Peter project in Orgeon which two privately owned electric companies propose to construct.

• With a reasuring nudge from the Eisenhower Administration the $266-million St. Lawrence power project sailed through FPC and gained quick approval from the federal courts.

The Administration has implemented its power policy by drastically trimming federal appropriations for water power development. The Truman budget for TVA, for instance, was chopped from $239.4 million for construction to $178.4 million last year and down to $120 million for the current fiscal year.

In a similar manner, Bureau of Reclamation construction funds were trimmed from $193.8 million under the Truman budget to $116.3 million.

Congress and the President upped the figure slightly for the current fiscal year.

Multi-purpose projects of the Corps of Engineers received somewhat the same treatment. The Truman Administration early last year asked for $327 million for construction of such projects during the fiscal year which ended June 30. The Administration cut the request to $238 million and Congress snipped it to $215 million. For the present fiscal year, Congress has voted $207 million for continued construction of these projects.

• **Coosa River example**—Armed with assurances that the federal government would not longer compete with local public and private interests in hydro development, local interests stepped in to file license and preliminary permit applications. Where legislation was needed, bills were started through Congress.

Alabama Power applied for a FPC preliminary permit for the Coosa development last November and was told that a part of the project was already authorized for federal construction. Before a permit could be issued, Alabama Power was told, the project had to be de-authorized.

Legislation providing for this de-authorization was introduced early this year by eight of Alabama's nine congressmen. After a one-day hearing, the bill sailed through Congress and was finally signed into law in early July by President Eisenhower.

(*Continued on page 22*)

Seek million for U.S. building statistics

Congress has been asked for $1.1 million for fiscal 1955 to enable the government to expand its statistical data on the construction industry.

The money—tucked away as part of a whopping supplemental appropriations bill—would be divided into two parts: $1 million to the Department of Commerce and $100,000 for the Bureau of Labor Statistics.

Washington observers thought that the request for the added funds might be an attempt to answer a steady drumfire of criticism of the government's construction figures—as too slow, incomplete, and confusing. But the purposes of the new request, as brought out in congressional committee hearings, were for an even further expansion of present coverage.

The case for the Commerce Dept. was presented by Asst. Secretary Lothair Teetor who said the money would permit the following added services: revision of building materials production index, adding ten materials; launching of studies of labor and materials requirements; surveys of residential vacancies in metropolitan areas on semi-annual basis with U. S. totals; updating of data now considered out of date; collecting data on private expenditures for building alterations and repairs; reinstituting its estimates of state construction expenditures; and seeking to learn how construction awards are translated into work put in place.

• **Outsiders to help**—Commerce will do most of the work within the federal government. Data will be procured from outside services which gather and collate construction information. Teetor pointed out this would enable the department to compile such information without duplication of work already

(*Continued on page 22*)

. . . Speed-up in power construction

Under terms of this bill, FPC is permitted to license Alabama Power to build a series of five new dams on the Coosa for flood control and power production. Installed capacity of the five projects will be around 239,500 kw and all five are to be built within ten years after a license is issued for the first one.

If and when a license is issued for the Idaho Power Hell's Canyon project, a similar or faster time schedule is expected to be required.

Whenever it gets a chance the Administration is certain to step up construction on projects. It is set on encouraging local interests to exceed the pace at which hydro development was carried on under previous administrations.

On big main-stem projects where no local interest is anxious to step in, the federal government intends to continue a slow-paced program. That's the reason for the Administration effort to gain authorization of the $1-billion Upper Colorado River project.

There are a number of lesser power projects on the Administration's planning boards. If local development does not come along at a satisfactory rate, the federal government will increase its own program.

The Administration hopes, of course, that federal spending for water power development can be kept to a minimum. But power shortages or lack of local participation would bring the federal government more into the picture.

• **Hell's Canyon and TVA**—Administration power policy faces stiff political opposition from advocates of public power. The battle seemed likely to center on a couple of big issues.

A White House order to hold back expansion of generation facilities by Tennessee Valley Authority and buy power from a privately financed plant is bringing angry criticism from public power and TVA backers. Because Atomic Energy Commission is involved in the proposed deal, legislators threaten to block the new atomic energy bill which would faster industrial development of atomic power.

Construction contractors have a stake in the outcome of this power battle. If the Middle South Utilities-Southern Co. group is chosen to supply the power, as the President has directed, construction of the $107-million plant will go to private contractors. If TVA is to supply the power, it will use its own work forces.

FPC hearings drew to a close last week on Idaho Power Co.'s bid for a license to build the $133-million Hell's Canyon hydro project on the Snake River, but a final decision is still months away. Public power forces have strung out hearings on the three-dam project for more than a year with an eye to making the project an issue in this year's congressional elections in the Pacific Northwest.

. . . Improved construction statistics

being done satisfactorily by outside services.

The BLS case was presented by Commissioner Ewan Clague. Both Teetor and Clague appeared before the House and Senate Appropriations Committees last week in the course of hearings on the supplemental appropriations bill. The requests, if granted, will provide for the initiation of work by Commerce and BLS in three areas:

• Labor requirements for construction—initiate an annual survey program, designed to furnish employment factors for all important classes of construction. It is proposed that the various types of construction be surveyed on a five-year cycle, each labor cost factor restudied every five years.

• Annual survey of residential builders—to provide information as to current status of the residential building industry, as regards to number of building firms, their relative size in terms of number of houses built per year, and other business activity. This program would involve direct interviews with about 5,000 builders, who would be asked for such information as: number of houses built in previous year, number planned for current year, types of housing units built, other businesses (real estate, retail, lumber, etc), type of market served (low income, luxury, etc), volume of land holdings, method of financing, sales experience (average time elapsing between completion and sale of houses).

With this and related data, Clague pointed out, "it will be possible to find out what changes are occurring in the structure of the house building industry. . . ."

• As part of the combined program, Commerce will collect data on private expenditures and BLS will assembly comparable data on the federal side. Actually, much of this data already is being reported to BLS and the additional funds would provide for clerical and tabulating costs of assembling and analyzing it.

House committee approves $350 million Army housing

A $350-million housing program for military installations has been approved by the House Armed Services Commitee, with the hope that the legislation can be hurried through Congress before adjournment.

The legislation provides for 300 homes for servicemen attached to the ring of Nike bases being constructed around the country's major cities. It also covers housing units at these military posts: Camp Crowder, Mo.; Fort Lewis, Wash.; Camp Cooke, Calif.; Yuma Test Station, Ariz.; Belle Mead Depot, N. J.; Fort Huachuca, Ariz.; Army Transmitting Station, Va.; Fort Eustis, Va.; Wilmington Ammunition Terminal, N. C.; Two Rock Ranch Station, Calif.; Sandia Base, N. M.; Killeen Base, Tex.

Army to build Nike bases around San Francisco Bay

Bids were called last week for three new Army Nike launching bases in the San Francisco Bay area. The guided missile installations are expected to cost some $1.5 million.

The San Francisco district office, Corps of Engineers, announced that bids will be opened July 29.

One of the anti-aircraft projects will be located on 40 acres at the Presidio of San Francisco; the second on a 55-acre tract one mile northeast of Berkeley; and the third on 75 acres, two miles west of Danville.

Four Nike launching sites already are under construction in the area, located near Lake Chabot in the East Oakland hills, and at Forts Baker, Barry and Cronkhite in Marin County.

New Columbia River span to parallel present bridge

Army Engineers have approved a plan for consrtuction of a new Columbia River bridge parallel to the present Portland-Vancouver span so that each bridge can carry one-way traffic, more than doubling capacity.

Following completion of the new bridge, the old bridge would be altered to conform with it. Each bridge would have three lanes of traffic. Their combined capacity is estimated at 75,000 to 80,000 vehicles a day (current capacity 35,000).

R. H. Baldock, chief engineer of the Oregon State Highway Department, estimated that construction work on the two bridges would require two years. The authorization from the Army engineers provides that construction must start within two years and be completed within five years after June 18, 1954.

NATO bidding

Steps taken to assist U. S. contractors in getting bid data earlier

The Commerce Department is after North Atlantic Treaty Organization countries to give prospective U. S. bidders more advance notice on bid openings for $1.5 billion of NATO military construction jobs in Europe.

Frustrated in its efforts to keep U. S. firms adequately appraised of NATO jobs (ENR June 24, p. 21; July 1, p. 22), the department's Bureau of Foreign Commerce has instructed its regional office in Paris to insist that foreign procurement offices get out their bid data in sufficient time for U. S. firms to prepare contract proposals.

The matter was brought to a head when a bureau release dated July 2 gave notification of air base installation projects in Greece with bid closing dates of from July 9 to 20.

Meanwhile, Commerce officials this week stressed the importance of prospective U. S. bidders taking steps to establish their bidding qualifications.

They pointed out that firms must prepare a brief resume of their operations with special reference to work done for other countries and for the U. S. government. This resume together with a financial statement should be forwarded to the Commercial Intelligence Division, Bureau of Foreign Commerce, Washington 25, D. C.

The bureau will process the information and those qualifying will be certified to member NATO countries. The certification also will be listed with the U. S. regional office of the Bureau of Foreign Commerce in Paris, which makes a consolidated list of certified firms and furnishes the lists to all NATO countries. Once a competence certification has been issued for any one project it is valid for all others.

Advance notice on bidding for NATO projects is released through the U. S. Department of Commerce official publication, "Foreign Commerce Weekly," subscriptions to which can be obtained by writing to the Bureau of Foreign Commerce.

The Bureau of Foreign Commerce advised this week that U. S. bidders need not wait until their certification papers have been processed before contacting procurement offices in NATO countries to get details on jobs known to be coming up for bids.

In addition to eight projects already announced (ENR July 1, p. 22), nine new jobs totaling an estimated $19.6 million were made known last week. These projects include airfield construction in France, Italy and The Netherlands, and pipeline installations in Norway. Except for the airfield construction project at Trapani, Italy, none of the other project locations has been given.

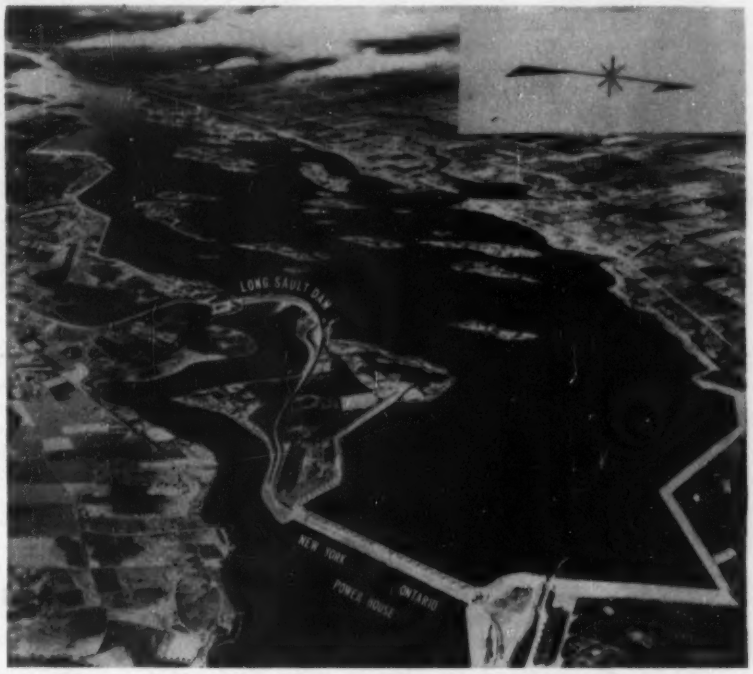
The foreign procurement offices concerned with these projects are:

Italy: Ministere Della Difesa-Aeronautica, Direzione Generale Domanio, Viale Castro Pretorio, Rome.

France: Secretariat d'Etat aux Forces Armees "Air," Service de L'Infrastructure, 26 Boulevard Victor, Paris.

Norway: Forsvarets Angleggsdirektorat, Parkveien 68, Oslo.

Netherlands: Director Gebouwen, Werken en Terreinen Bagignestvaat, The Hague.



INTERNATIONAL BOUNDARY runs right through the center of the St. Lawrence powerhouse, now under design as a semi-outdoor structure. Proposed Seaway navigation structure is shown on the Ontario side.

St. Lawrence power project bids called

Bids will be opened Aug. 7 on the first St. Lawrence power project contract to be let by the Power Authority of the State of New York. The contract will cover two cofferdams, dewatering, a bridge and incidental work for Long Sault Dam, near Massena, N. Y.

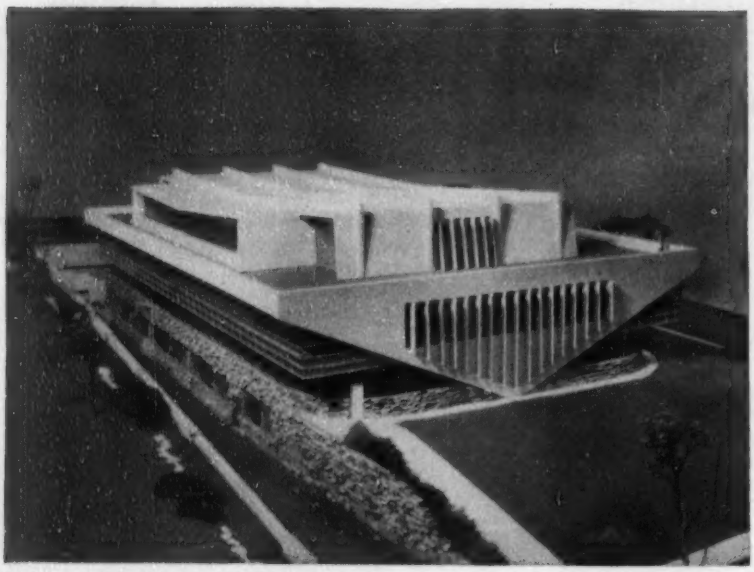
According to the advertisement for bids (page 84), the work will involve 1,000,000 cu yd of excavation of various classes, 100 tons of structural steel, 260 cu yd of concrete, 6,350 acre-ft of dewatering and alternate timber crib or cellular steel sheetpile cofferdam.

Other contracts are expected to follow as fast as plans can be completed. Consulting engineers for the New York Power Authority are Sanderson & Porter, New York, and Uhl, Hall & Rich, partnership name under which Charles T. Main Inc., of Boston is handling this project.

Meanwhile, the Hydro-Electric Power Commission of Ontario is proceeding simultaneously and is expected to call for bids at any time on first phases of Canada's portion.

U. S. and Canadian agencies continue to discuss compensation to Ontario landowners for land to be flooded. This is a problem of work between the two agencies. Ontario Hydro will be responsible for the cofferdam on the powerhouse site and between the Ontario shore and Barnhart Island. New York will be responsible for the cofferdam for the main dam (Long Sault), and it also will handle excavation to form the enlarged channel above the main dam. Ontario Hydro correspondingly will handle the building of Iroquois control dam.

An important meeting to discuss allocation of costs between the two agencies was postponed from its originally scheduled date, July 13, at the request of New York authorities. It is still hoped ground will be broken by mid-August.



What holds it up?

Many people taking their first look at the $1.5-million concrete headquarters building of the American Investment Co. of Illinois now under construction at Clayton, Mo., just outside St. Louis, will have trouble figuring out how the main roof (169x95 ft) is supported. They can see that the second floor is carried by concrete columns and reinforced concrete rigid frames, but there are no columns to hold up the main roof. The answer is that the roof is supported on the triangular concrete end walls, which carry the load on the apexes. Bank Building and Equipment Corp. of America, St. Louis, designed and is erecting the office building.

Texans demand more Rio Grande dams

Say long-planned upstream dams would have prevented disastrous flood in Laredo area early this month

The disastrous Rio Grande floods early this month have aroused demands for quick action to get construction under way on upstream flood prevention dams.

Texas Gov. Allan G. Shivers urged President Eisenhower in a telegram to start negotiations with Mexico at once on arrangements to build long-planned dams on the Rio Grande and Devil's River.

"The proposed dams upstream probably would have prevented all the horrible devastation which has been wrought by this flood," the governor said.

Sen. Lyndon B. Johnson said he would exert every effort to get Congress to appropriate money next year to start construction of the proposed Diablo Dam, on the Rio Grande about 15 mi upstream from the flood area.

Estimates place the probable cost of Diablo Dam at about $70 million. It is one of three dams authorized under the 1944 United States-Mexico water treaty.

Falcon Dam, a $47-million joint U. S.-Mexican project which has been in service less than a year, more than paid for itself by impounding Rio Grande flood waters downstream of the flood area. The International Boundary and Water Commission estimated that the flood would have caused at least $50 million worth of damage if it had rolled unchecked to the Gulf of Mexico.

Falcon Dam water elevations rose to 291 ft above sea level after the floods. The lake then held 2,000,000 acre ft of water compared with only 590,000 acre ft before the flood. Its capacity is 4,000,000 acre ft.

Damage caused by the flood was substantial. Engineers have estimated that the damage sustained by the five bridges wrecked at Laredo, Eagle Pass and Del Rio alone would amount to well over $5 million.

Receding waters showed that three spans of the International Bridge on the Pan American Highway were washed away.

In addition, more than 600 homes were destroyed in Laredo, and some 280 homes were ruined in Eagle Pass.

Shift river channel

Engineers to send water under "dry land" bridge

At long last, Army Engineers plan to swing the Missouri River under the "dry land" bridge at Decatur, Neb., but they are not sure they can keep it there unless Congress cooperates with continuing appropriations over the next few years.

Eight years ago the Missouri cut a new channel near Decatur. The $2-million bridge, completed in 1951, was built over dry land. This saved $400,000 in construction costs, but created an $11-million job of training the river back into its old channel under the bridge. The river shows no signs of cooperating voluntarily.

An appropriation signed by President Eisenhower last week provides $2 million to start the river rerouting job. Plans call for training work to begin this fall. A pile and stone revetment, constructed in the dry, will outline the new alignment of the river above the bridge. After it is completed, the river will be plugged to force water down the new channel. In late 1955 or 1956 a pilot channel will be dredged to start the river under the bridge itself.

Maj. Gen. Samuel D. Sturgis, Jr., Chief of Engineers, has made it clear that the Army believes starting the re-channeling job now and in this manner is hazardous business and is the idea of Congress rather than the Corps.

The piecemeal approach—a little work here and a little work there—is to invite losing the whole job to the river within a few years, Gen. Sturgis said. He advocated, instead, a systematized approach in carrying out Missouri River stabilization work.

These remarks of Gen. Sturgis struck sparks in the Civil Functions and Military Construction Subcommittee of the House. The subcommittee summoned Gen. Sturgis to explain his statements at a subcommittee hearing to be held late this month and ordered Army Engineers to postpone work until after the hearings.

Under this systematized program, stabilization work on the Missouri has so far progressed upstream to Omaha. The Decatur project will jump the work 60 miles farther upstream.

Gen. Sturgis said the order starting work at Decatur "won't be too harmful" if continuing funds are made available to carry the project 16 miles upstream to anchor it into the nearest tie-in bluff.

If such funds are not forthcoming, the money "might as well be poured down a rathole," he said.

Lease-purchase projects are slated

The General Services Administration and the Post Office Department are drawing up lists of the first projects they will build under the lease-purchase act Congress passed last week.

They plan to negotiate contracts late this summer.

GSA has asked its 10 regional offices to report on the most desirable projects in their areas. A list of selected projects then will be submitted to the Senate and House Public Works Committees for final okay. GSA under the law may commit up to $5 million in lease-purchase agreements in this fiscal year.

Post Office Dept. has been keeping a running inventory of needed projects and so has a tentative list of possibilities ready to send to the congressional committees. Final selections will be made this week or early next. The Post Office has up to $3-million authority to make contracts.

The congressional committees hope to give their okay on both GSA and Post Office proposals before the scheduled July 31 adjournment.

The new act (ENR April 29, p. 21; June 17, p. 24) finally cleared Congress last week. It provides the government a device for getting federal buildings under construction without having to wait for appropriations covering the entire cost. GSA and the Post Office can use appropriations for rental of building space to make initial payments under the lease-purchase arrangement.

For example, in the first year, GSA may commit $5 million of the $47-million Congress appropriated for rentals. After this first year, the congressional appropriations committees will authorize outlays for future lease-purchase contracts.

Jobs in the news

DENVER DEVELOPMENT—Del E. Webb Construction and the Aldon Construction Co., Los Angeles, will build a $100-million community near Denver. The project will include schools, shopping centers, playgrounds, parks and other community facilities as well as 6,000 homes. It will take five years to complete.

PIPELINES—Colorado Public Utilities Commission has approved the application of Colorado-Western Pipeline Co. to construct a 328-mile pipeline, costing $21.6 million, from the Ignacio gas field in southwestern Colorado to Denver. Construction is to start within a year and be completed in two years. Williams Brothers Co., Tulsa, will build a 260-mile, 16-in crude oil pipeline from Clearbrook to the Minneapolis-St. Paul District for the Minnesota Pipe Line Co. Estimated cost is $12.5 million.

PRESTRESSED BRIDGES—Contract for three prestressed concrete highway bridges in Washington has been awarded to Louis Elterich, Port Angeles, and Guy Norris, Shelton, for $97,247. Designed by Harry R. Powell, Seattle consulting engineer, two of the bridges will be about 140 ft long and separated by a small island in the Klickitat River. Each bridge will consist of five prestressed beams laid parallel to support a cast-in-place concrete deck. Construction will require only two months, as compared with an estimated five months for cast-in-place concrete and cost one-third less, Powell estimates.

HOSPITALS—Sherry Richards Co., Chicago, has been awarded a $13.3-million contract for construction of the Pittsburgh General Hospital. George A. Fuller Co., Los Angeles, was awarded a $6.6-million contract for an addition to the San Diego, Calif., Naval Hospital.

Engineering bids sought on Ontario bridge project

The highway department of Canada's Province of Ontario is reported to have been soliciting "sealed tenders on a lump sum basis" for design and supervision from a selected list of Canadian and U. S. consulting engineers for a major bridge over the Burlington Channel entrance to the harbor at Hamilton, Ont.

At least one U. S. firm called to Toronto by the highway department refused to submit a proposal when informed of the procedure to be followed, believing it to be in violation of the code of ethics of the American Society of Civil Engineers. Canadian engineering societies also are reported to have questioned the proposed procedure.

The new bridge will be a high-level structure to replace an existing swing bridge damaged two years ago by a Great Lakes freighter. The new bridge would furnish a much-needed facility on the Queen Elizabeth Way, an express highway leading to Niagara Falls. Since the bridge will cross a navigable waterway, part of its $14-million cost would be defrayed by the federal government of Canada.

Gas utilities spending

Gas utilities and pipelines will spend about $3.9 billion for construction during 1954-1957, compared with about $5 billion during 1950-1953. The American Gas Assn., estimates that capital spending was $1.35 billion last year, and will be $1.2 billion in 1954.

'Rain goods' manufacturers charged with price fixing

Another case involving delivered pricing of building materials has been filed by the Federal Trade Commission. The commission's complaint charges 20 manufacturers of "rain goods"—downspout pipe, gutter and eaves through, and such accesories as elbows, shoes, caps, outlets, hangers, and the like—with combining and conspiring to fix prices on these products. FTC charges that the footage items are sold on a zone-delivered price basis with different discounts for different classes of customers such as jobbers, dealers, hardware stores and builders. On the other hand, FTC contends, the accessories "are sold at uniform delivered prices which are identical for all the respondents . . . at any given time throughout the U.S."

FTC doesn't say just how much business is involved in the alleged conspiracy, but does claim that the companies involved "sell more than 50% of the dollar volume of rain goods produced in the U.S." And that they are "the dominant factor in the industry with the power to determine and control . . . the prices at which rain goods are sold. . . ."

The companies have 20 days in which to answer the charges. FTC has tentatively scheduled a hearing on the charges for Sept. 20.

Towers placed to moor pier of Mackinac Straits Bridge

Three towers each 115 ft high have been driven into place to serve as caisson moorings for one cable-rest pier of the suspension-span portion of Mackinac Straits Bridge.

Two of the towers consist of nine vertical pipes 20 in. in diameter arranged in three rows and joined together by pipe bracing. The third has only six pipes in two rows. The towers are tall enough to extend above the surface when driven into the bottom of the Straits. Each tower also has three pipes in a batter position. H-piles are driven through the pipes to complete placement.

The cable-rest pier's caisson is 92x44 ft in plan. Fabricated in a 44-ft height, it was floated last week at a Toledo shipyard. Two other piers will be placed by the same caisson method.

Merritt-Chapman & Scott, Inc., is doing caisson and underwater foundation work for the bridge under a $25.7-million contract. American Bridge Co. holds a $44.5-million contract for the superstructure.

Right-to-work: one law up, one down

Louisiana ok's measure curbing union activity—Idaho proposal killed by state court action

Leaders of organized labor scored one victory and one defeat last week in their running battle against the passage of state "right-to-work" laws that would sharply curb union organizing activities.

Construction men—particularly affected because of the peculiar working conditions of the industry and long-established customs—have been watching the fight closely.

The defeat (for labor) occurred in Louisiana, where after a bitter battle in the state legislature, Governor Kennon signed into law a measure that outlaws the closed shop and other forms of what has been called compulsory unionism. Louisiana thus became the 17th state to nail such a statute into its legal books.

The victory came in Idaho, where a legalistic attack on the wording of an initiative petition succeeded (via a court ruling) in killing any action on a right-to-work law for at least a year.

• Law's provisions—Patterned after a Virginia statute, which was upheld by the U. S. Supreme Court recently, and similar to measures enacted earlier this year in Mississippi and South Carolina, the new Louisiana law:

- Makes illegal lockouts, layoffs, boycotts, picketing, work stoppages, slowdowns and similar conduct, when used to deny employment because of union or non-union status.
- Makes illegal any agreement between an employer and labor that denies employment to any person because he is not a union member.
- Makes illegal the use of any means to induce an employer to refuse to hire non-union employes, and entitles any worker to damages if he is denied work through violation of the law.
- Entitles both employer and labor to injunctive relief if threatened with injury through a violation of the law.

The measure was attacked by a solid front of labor chieftans in the state, as punitive and discriminatory, but it had the whole-hearted backing of the governor and legislative leaders.

• Attack on words—In Idaho, state AFL and CIO organizations seized on wording of the petition for consideration of a "right-to-work" measure, and succeeded in getting State Supreme Court to throw out the petition itself before necessary signatures could be obtained.

The objectionable wording was contained in a 10-word "short title" assigned to the petition by the state's attorney general. The title assigned: "The Right to Work Initiative Proposal."

Labor leaders contended that the title was prejudicial, in that it implied that the measure would somehow restore a right taken away, or establish a right that had not previously existed. The court agreed.

• Other actions—Meanwhile, Oklahoma proponents of such a law began a move to have the law (which failed in the state legislature in 1953) submitted directly to voters in the form of a constitutional amendment.

In New Jersey, Governor Meyner had called for—but taken no action on—revision of the state's rigid public utility labor control measures, which prohibit strikes and other actions in the utilities.

Wage settlements hold to pattern

Led off by a rather startling agreement whereby Baltimore carpenters assented to a new contract providing no increase in pay, wage negotiations in the construction industry continued to follow a general easy-does-it pattern last week. Most other agreements reported followed the average of about 10 cents an hour that seems to have been established as an industry pattern (ENR July 1, p. 127).

The Baltimore carpenters ended 45 days of negotiations with members of the city's Associated General Contractors chapter, with an agreement to continue at their present $2.75 per hour rate for another year. Local construction men cautiously pointed out that the agreement may mark a halt in the upward spiral of wages and construction costs in the city.

Other settlements reported during the week included: Electrical workers at Seattle accepted a 7½-cent plus 6-cent vacation payment increase; Milwaukee carpenters, bricklayers, masons and ironworkers took a 5-cent-an-hour across the board increase, plus 2 cents per hour toward a welfare fund. Alaskan carpenters accepted wage increases ranging from 12½ cents to 15 cents an hour; Miami, Fla., sheet metal workers accepted 11 cents an hour raises.

Trouble, however, has reported at two key spots: Denver, where four unions (operating engineers, cement finishers, asbestos workers and structural iron workers) went on strike for wage increases up to 25 cents an hour; and in central and northern Georgia, where building tradesmen were demanding up to 35 cents an hour more.

• In Atlanta—A group of representatives for 3,500 building craftsmen, and employers were meeting with Federal Mediation and Conciliation Service officials in an attempt to settle a five-day walkout that had virtually shut down the city's construction industry. The men had demanded a 25-cent-an-hour raise and more benefits.

Labor briefs . . .

• Back pay—NLRB tied itself into a neat knot in a decision ordering a Rhode Island local of the Operating Engineers union to pay $5,155 in back pay to a discharged crane operator. Four board members at a hearing agreed that the operator was unlicensed, and therefore couldn't be reinstated in his job—but said he was entitled to the back pay anyway.

• No change—And, although NLRB's membership has changed, the new board won't entertain requests for reconsideration of previous decisions based solely on the change in composition. NLRB made that clear in turning down a request from a structural iron contractor who had been hit a year previously for attempting to discourage CIO activity by firing four workers and suspending 22 others.

• Ohio 'pike delayed—A union flareup over hauling of materials for a portion of the Ohio Turnpike has widened, with machinery operators at a gravel pit at Ransom, Mich., joining teamsters in a fight for more pay. The teamsters are demanding hourly pay, rather than pay by weight of load, for hauling material across the state line to turnpike construction sites. Operating engineers demanded raises averaging 75 cents an hour.

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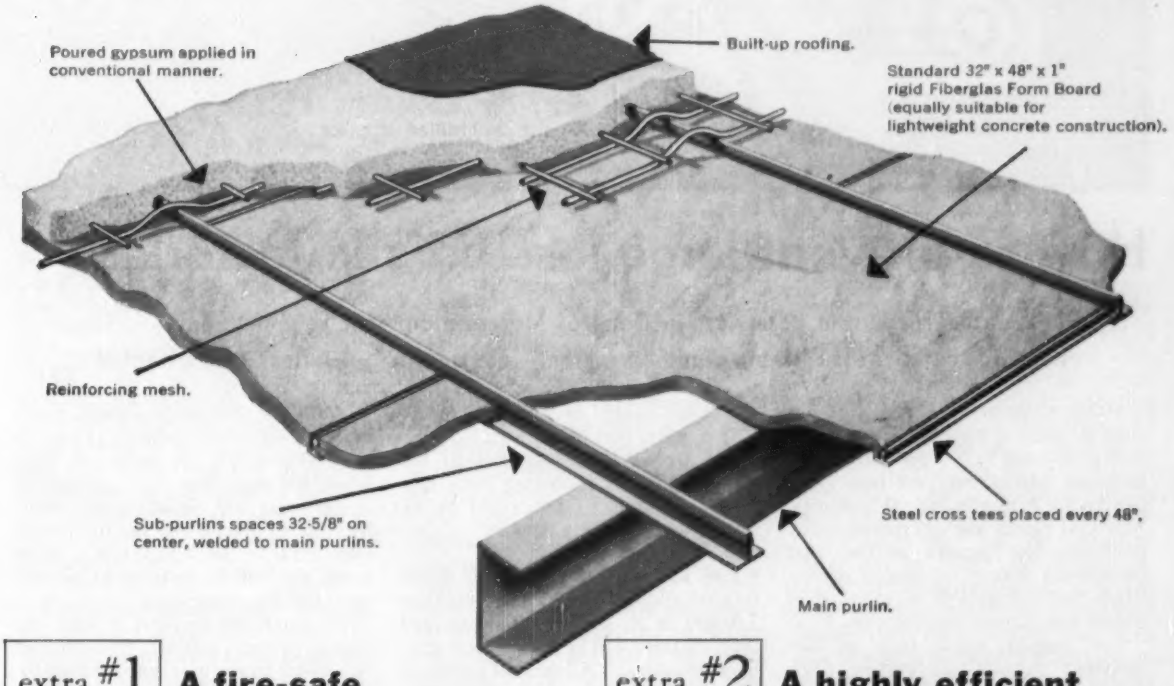
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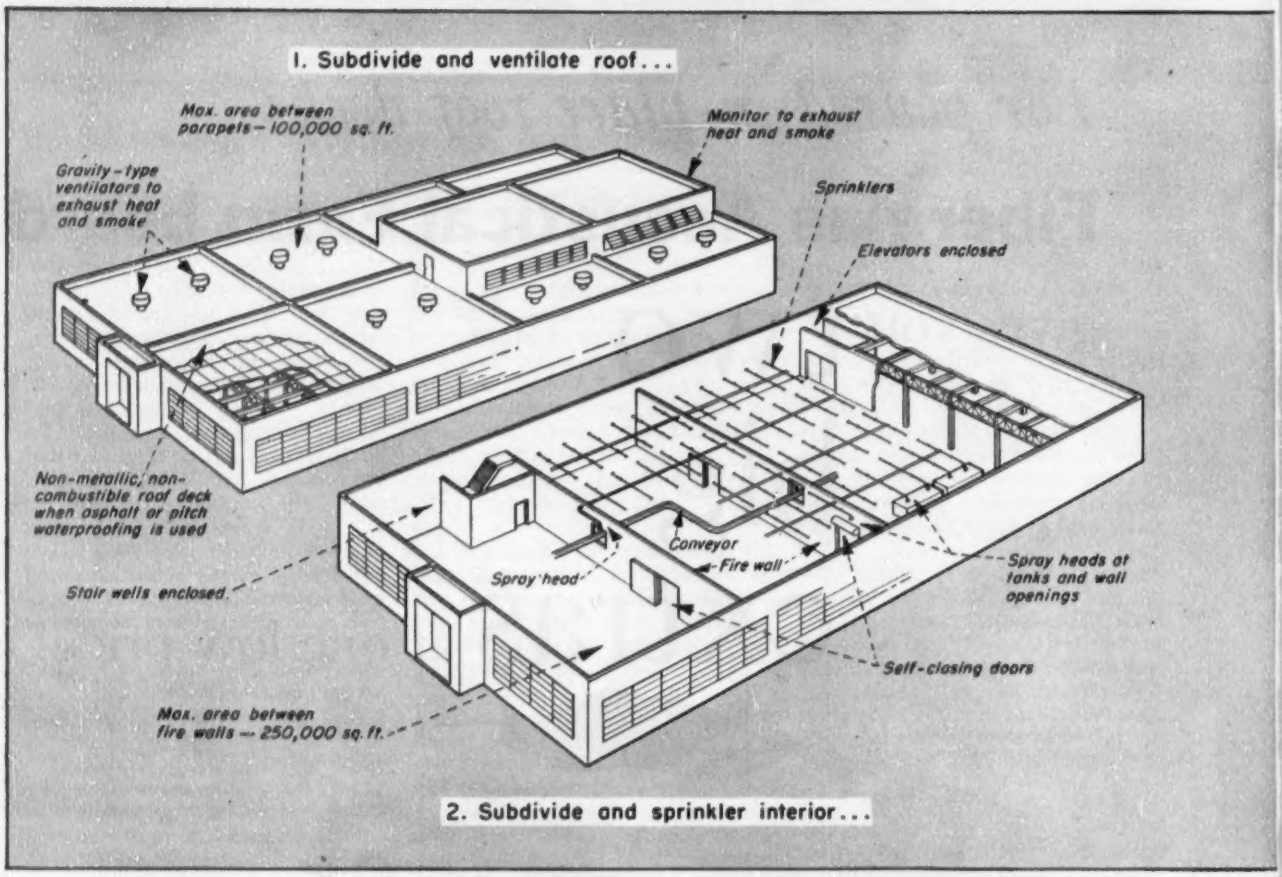

1. Subdivide and ventilate roof...
Max. area between parapets – 100,000 sq. ft.
Monitor to exhaust heat and smoke
Gravity-type ventilators to exhaust heat and smoke
Sprinklers
Elevators enclosed
Non-metallic, non-combustible roof deck when asphalt or pitch waterproofing is used
Conveyor
Fire wall
Spray head
Spray heads at tanks and wall openings
Stair wells enclosed
Self-closing doors
Max. area between fire walls – 250,000 sq. ft.
2. Subdivide and sprinkler interior...

How to prevent large-loss fires in factories

Lessons learned from holocaust in General Motors plant last year include need for extensive fire breaks and sprinklers—contractors' practices also affected

What General Motors Corp. has done to prevent a recurrence of a fire such as the one that wiped out one of its major plants last year may set a pattern for future industrial buildings. New GM plants will incorporate many provisions—not present in one that burned—for preventing spread of fire. Extra precautions will be required of contractors during construction.

Last August, sparks from an oxy-acetylene welding and cutting torch dropped into a conveyor drip pan containing oil in the GM Transmission Division plant in Livonia, west of Detroit. Minutes later, heat and smoke forced fire-fighting employees to abandon the enormous 4-year-old metal-working plant, and within one hour, the entire 1,500,000-sq ft manufacturing area was a total ruin (ENR Aug. 20, 1953, p. 28). A report of the National Fire Protection Assn. later blamed failure to halt the blaze on lack of sprinklers and fire walls (ENR Oct. 15, 1953, p. 24). This June, insurance companies turned over $30 million to GM to offset part of the loss.

To prevent large-loss fires in the future, GM is eliminating from new plants inadequacies uncovered by investigations of the holocaust.

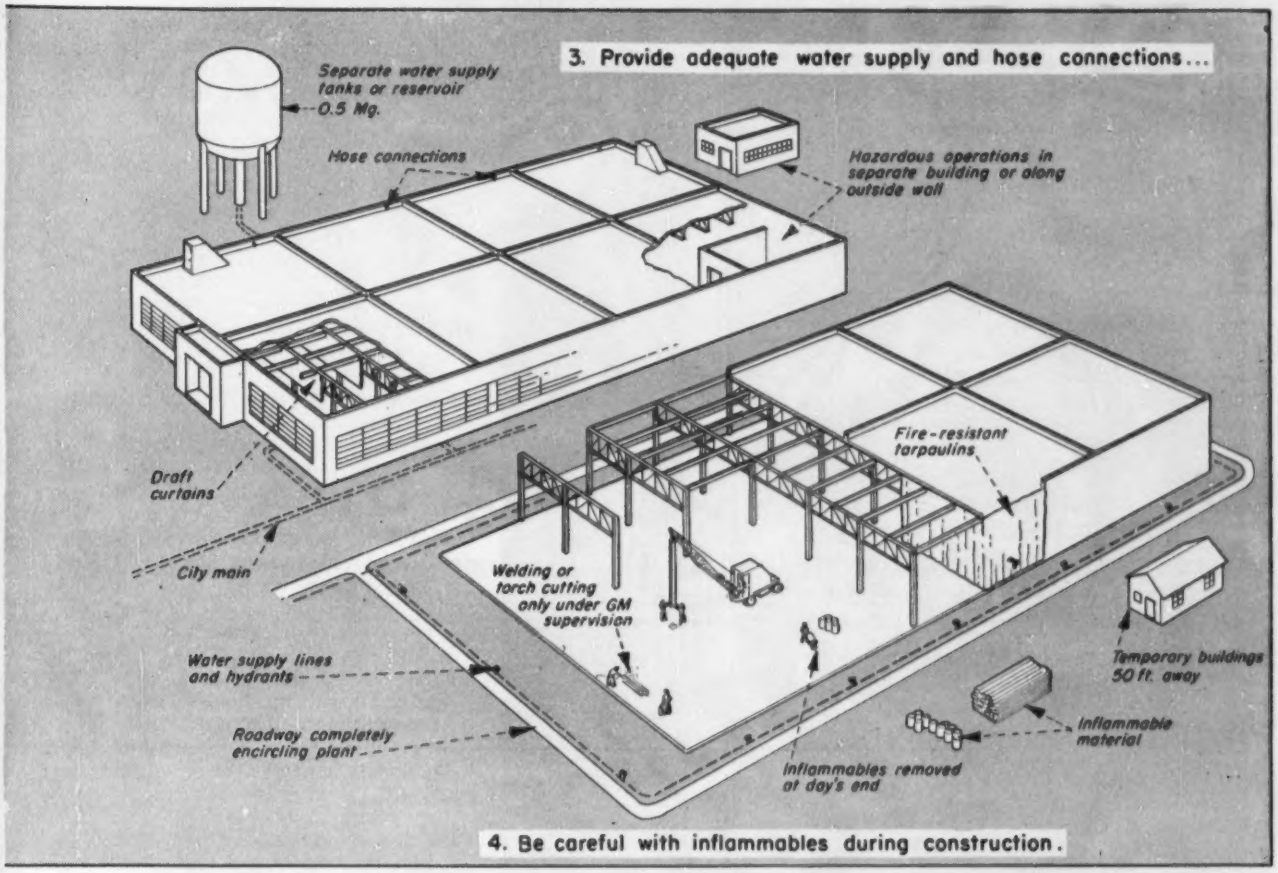
• **Fire barriers**—Fire walls will divide future buildings into areas of less than 250,000 sq ft, and fire partitions and draft curtains will be used to segregate hazardous areas. All vertical openings, such as stair wells and elevator shafts, will be enclosed with fire walls.

Parapets or fire stops will subdivide roofs into areas of less than 100,000 sq ft. Parapets will be at least 2 ft high and capable of withstanding a fire of 2-hour duration.

• **Sprinklers**—GM intends to obtain 100% sprinkler protection, except where water might cause an explosion or damage electrical installations. All vertical openings, such as body drops and conveyor wells, are to be protected by sprinklers and automatically closing fire-resistant covers or doors. More use than before will be made of spray heads for protecting such equipment as dip tanks and quench tanks, where this type of head is believed to be more effective than the deluge type. Spray heads also will be installed in fire-wall openings for conveyors.

All plants are to have at least two sources of water supply. In communities where mains may not be adequate, reservoirs of 0.5 mg capacity are to be erected, and each plant must maintain as many standby diesel-powered pumps of 1,500-gpm capacity each as are needed. Sprinklers are to be fed from outside underground loops.

Enough hydrants, each having not less than two 2½-in. outlets will be installed, so that two streams can be played on any part of the interior of each building not protected by interior standpipes. Hydrants must be located to permit all of the exterior of every building to be reached with water from


3. Provide adequate water supply and hose connections...
Separate water supply tanks or reservoir 0.5 Mg.
Hose connections
Hazardous operations in separate building or along outside wall
Fire-resistant tarpaulins
Draft curtains
City main
Welding or torch cutting only under GM supervision
Water supply lines and hydrants
Roadway completely encircling plant
Temporary buildings 50 ft. away
Inflammable material
Inflammables removed at day's end
4. Be careful with inflammables during construction.

hose lines no more than 500 ft long. Also, fire hose connections will be placed on roofs, with enough hose to reach any section.

Where possible, very hazardous operations—paint mixing, flammable liquid storage and acetylene generation, for example—will be located in buildings completely separated from main plants, or at least along an outside wall where they can be isolated from other operations by a fire wall.

To exhaust heat and smoke, monitors or gravity-type roof ventilators will be used.

• **Roof construction**—Some investigators of the Livonia fire reported that the unprotected steel roof topped with builtup roofing contributed to the rapid spread of fire. The metal, they said, did not offer sufficient insulation to prevent asphalt from melting and dripping through joints in the heat-warped deck. Since the Livonia fire, GM plant management has been advised that roof decks should be of precast concrete or non-metallic noncombustible material when waterproofing materials such as pitch or asphalt are used. Noncombustible roof insulating materials are to be used, and all joints will be sealed to prevent pitch from dripping in case of a future fire.

Roof trusses are to be designed to carry not only dead and live loads, with provision for normal safety factors, but also an additional load of at least 2,000 lb at each panel point.

• **Restrictions on contractors**—GM has made regulations pertaining to plants under construction more stringent. General contractors will be responsible for maintaining safe conditions.

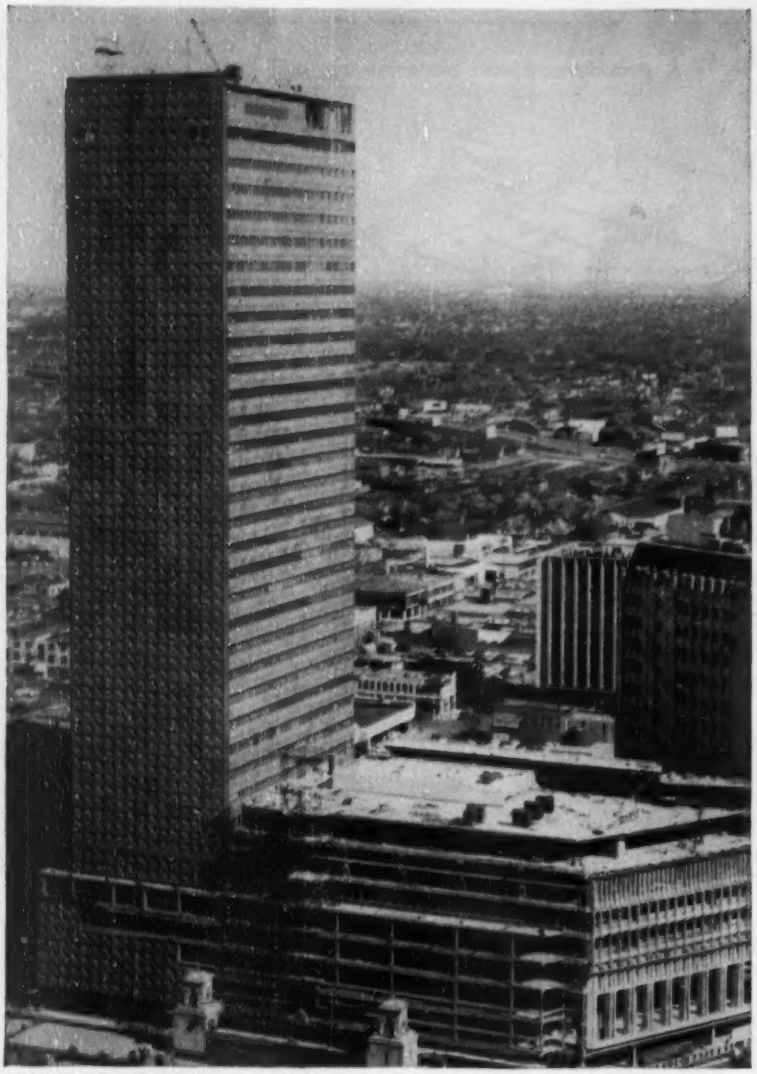
As soon as construction starts, a roadway completely encircling the plant must be built so that fire-fighting units can reach any section. Underground water supply lines, yard mains and principal hydrants are to be put in immediately, and inside standpipes and hose are to be installed as construction proceeds. Enough hoses to reach every part of the building under construction, all shanties and all material storage areas are to be provided. Fire extinguishers must be available.

All temporary buildings are to be built at least 50 ft away from the building under construction, and no materials, vehicles or other obstacles may be placed between the plant and other buildings. Trucks, cars or other vehicles used during construction may not park within a building except when construction is being performed and the vehicle operator is present.

Tarpaulins must be fire-resistant, and their placement and use must be closely supervised by the fire chief of the particular GM division. No flammable material may be stored within a permanent building, whether under construction or completed. All combustible debris must be removed from all buildings at the end of each work day. Noncombustible debris must be removed at least once a week.

No tar kettles will be permitted inside any building. All roofing materials and insulation must be stored outdoors. Also, no heaters can be used inside after roof decking has been placed unless heaters and enclosures are approved by GM. Wherever acetylene or electric-arc cutting and welding are done, a GM employee charged solely with fire prevention must be present.

The new GM plants may be more costly initially, but evidently GM figures the fire-prevention measures it is taking will pay off in the long run. Many of the steps have long been advocated by fire-prevention engineers and the NFPA, which makes available literature offering excellent suggestions for fire prevention and fire fighting.



ALUMINUM PANELS form the exterior of Republic National Bank Building.

Skyscraper with lightest wall

Curtain walls enclosing the steel frame of the 36-story Republic National Bank Building in Dallas, Tex., weigh only 4.5 lb per sq ft. This is only one-ninth the weight of the exterior walls of the Alcoa Building in Pittsburgh, which only two years ago were considered recordbreaking because of their lightness.

The $20-million bank structure, which will be completed this fall, is enclosed with two different types of panels. One, used for the west wall, forms an unbroken expanse of aluminum for the full height of the building, except for four windows in the 35th story. The second type, employed for other exteriors, is a story-high aluminum panel incorporating windows. It is this second type of wall that weighs only 4.5 psf.

• **Very thin walls**—The panels with windows consist of a ⅛-in.-thick aluminum facing backed up with glass-fiber insulation and an aluminum-foil vapor seal. Total thickness is 1½ in.

Behind these walls below window level, and separated from them by a 4-in. air space, are air-conditioning units in a continuous metal enclosure. A metal fascia extending from the top of the window to a suspended plaster ceiling completes the interior enclosure of the wall.

In contrast, outer walls of the Alcoa Building consist of a ¼-in. aluminum facing weighing 2.4 psf, 4-in. perlite-concrete backup weighing 27 psf, and furring and plaster weighing 10 psf—total, nearly 40 psf (ENR April 3, 1952, p. 67).

Panels with windows for the Republic building are 4½ ft wide by 12 ft high, the full story height. Anodic treated, they are stamped in a star pattern, for decorative and stiffening purposes. Interlocking with panels below and to either side, to make a watertight seal, the aluminum facing is bolted to the sides of supporting mullions.

Windows occupy nearly the full width of panel. Glazed with heat-absorbing glass, they are vertically pivoted so that they can be cleaned from inside the building. Continuous plastic strips form a seal between sash and frame.

• **Concrete mullions job-made**—To hold the panels in place, story-height, precast concrete mullions were bolted to the floors around the edges of the building. These verticals, 4x8 in. in section, were cast in horizontal position in metal forms on every floor, as needed. Threaded inserts were set in the concrete to receive bolts for anchoring the mullions to the building and for attaching the wall panels.

A fork-lift truck transported the mullions from casting site to the edge of the building for erection. Powered rotation of the fork enabled this equipment to pick up the mullions and shift them from a horizontal to a vertical position.

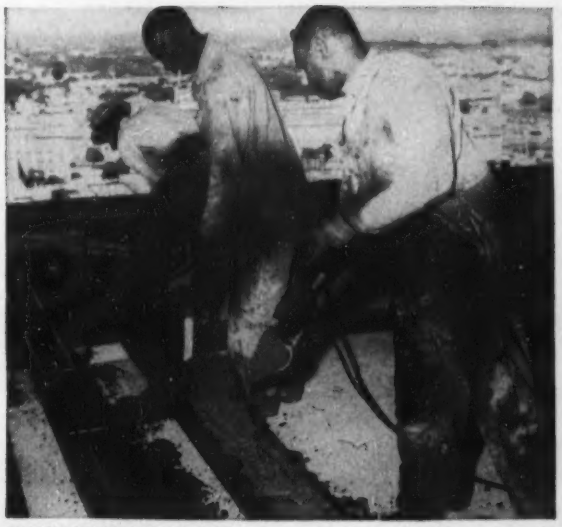
• **Panels without openings**—The west wall is faced with ¼-in.-thick, 5-ft 8-in.-wide aluminum panels of full story height. These also are stamped with a star pattern, but there is no provision for windows.

Interlocked and flashed to prevent penetration of water, the panels are fastened to 4x4-in. galvanized steel angles, which are bolted to the spandrel beams. Behind the panels are an air space, 4-in.-thick perlite-concrete backup and plaster, giving a unit weight practically the same as for the Alcoa Building walls.

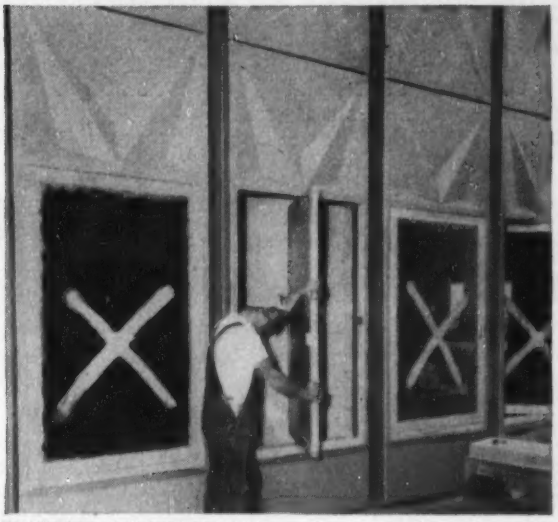
The new building is noteworthy also for several other reasons, including arrangement of facilities, structural framing in the banking area, air conditioning, and elevators.

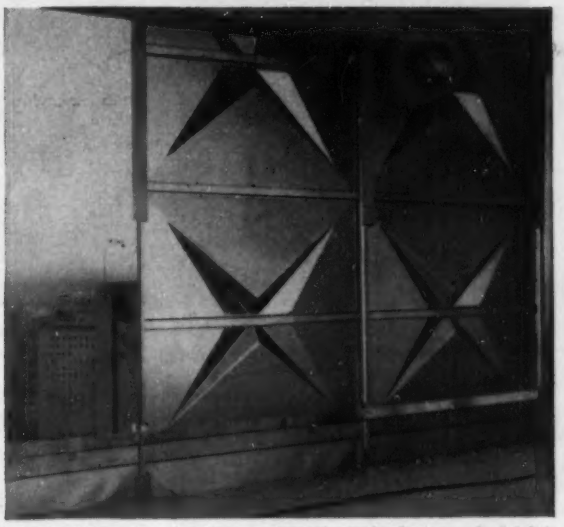
• **Drive-in facilities**—The 36-story tower is at one end of a long 8-story base devoted principally to banking. The main banking room is on the second floor. Stores occupy the first floor. Underneath are four basements containing mechanical equipment and accommodations for clientele arriving by automobile.

The top basement contains facilities for drive-in banking. Lower basements offer parking areas. Floor area in the building totals 900,000 sq ft, including 200,000 sq ft in the basements.



CONCRETE MULLIONS were precast on the job (left) and positioned by a fork lift truck (right) to support wall panels.





PIVOTED WINDOWS (left) are placed in panels on three sides of the building; fourth side consists of windowless panels (right).

• **Floors hung from trusses**—To keep the main banking room clear of columns, floors above were suspended from five 130-ton trusses in the seventh story. These story-high trusses span the 95-ft width of the banking room, with rolled steel column sections being employed as hangers.

• **Three types of air conditioning**—In the bank wing are a large number of separately controlled units for heating and cooling, with built up dehumidifiers. In the tower, under-window units are served by a high-velocity conduit system; and a ductwork system takes care of interior zones.

Refrigeration is accomplished with two 1,000-ton steam-turbine-driven centrifugal units, with steam provided at 225 psi by gas-fired water-tube boilers. This equipment is in the basement, but air-conditioning equipment also is installed on the seventh and thirty-sixth floors. The cooling tower extends from the 35th floor to the top of the building.

Risers for the perimeter system run along the webs of outer columns, which are set back about 3 ft from the sides of the building to provide space for ducts between spandrel beams and exterior walls. To clear these risers, wind connections at columns had to be boxed out. Beams are stopped 10 in. from the web and picked up on stubs attached to column flanges.

• **Operatorless elevators**—Vertical transportation will be supplied by four moving stairs, between basement parking areas and banking facilities, and 22 elevators.

All the elevators are of the fully automatic, operatorless type; the owner will decide how many will be attendant-operated. High-rise cars will travel at 1,000 fpm; low-rise cars, at 700 fpm. Banks of these elevators will be controlled by electronic traffic analyzers (ENR May 7, 1953, p. 32). Electronic door detectors—proximity devices—will prevent doors from closing prematurely on passengers. The elevators were installed by Otis Elevator Co.

Harrison & Abramovitz, of New York City, and Gill & Harrell, of Dallas, are the architects. Edwards & Hjorth are the structural engineers, and Jaros, Baum & Bolles, the mechanical engineers—both New York City.

J. W. Bateson Co., Inc., is the general contractor. Flour City Ornamental Iron Co. is the subcontractor on the aluminum work. American Bridge Division of U. S. Steel Corp. erected the structural steel. Farwell Co., Inc., holds a subcontract for the mechanical installation.

SHORING FRAME on I-beam runners carries pedestrian overpass away from factory. Temporary bridge remains in place to maintain access to parking lot. Note timber landing (right) leading from stairway to embankment.

Bridge moved endwise for factory expansion

Steel shoring, rollers and long jacks were the principal moving parts for the relocation of a concrete footbridge at Ford Motor Company's plant in Metuchen, N. J.

Two other features of the work remained stationary—track beams on which the bridge rolled, and a Bailey bridge. The latter was fixed at one end (the wall of the existing factory building); at its other end it rested on the deck of the footbridge as this structure rolled outward. Thus the crossing between the existing plant and a parking lot was kept in service at all times.

Total distance of the move, 60 ft ¾ in., was the width of space needed for a plant expansion. Actual time of moving was 2 hours; this after three weeks of preparation by a crew of Spencer, White and Prentis, Inc., New York foundation contractor. This firm was subcontractor to Hackart Construction Co., Inc., New York, which installed the Bailey bridge and also did the necessary excavation for the move.

Here's how Spencer, White and Prentis workmen did their job:

• **Beams sandwich rollers**—On 6 in. of gravel base they placed 12x12-in. and 10x10-in. timber cross-ties 14 ft long. Spacing was 3 ft, and the ties were set slightly below desired grade so that track beams later could be shimmed upward to grade with wood shingles. For tracks, a pair of 12-in., 53-lb I-beams was spiked to the sleepers throughout the entire run, 12-ft apart. A similar set, to be used as runner beams, was placed above the first set, with rollers between to permit an almost friction-free move.

These rollers were of cold rolled steel, 2 in. dia and 28 in. long. They were held loosely in sets of three by channel strips with holes to receive the rollers. The channels were held square with welded angles. When workmen pushed one channel edge up against I-beams, the rollers were lined up automatically perpendicular to the direction of travel to assure a straight move.

A ¼-in.-thick sole plate had been welded to the underside of each runner beam in the zones of bearing—directly under the two carriage towers and under the stairway of the overpass. These sole plates were tapered on the ends to allow gradual introduction of successive sets of rollers. Thus they also allowed ¼ in. of play between track and runner beams for adjustment of rollers before re-engagement.

Weight was transferred from the four footbridge pier columns to two steel shoring towers mounted on the track beams. Tie rods and wood braces clamped these columns to the steel towers to prevent any pendulum motion during the operation.

• **Abutment shored up**—The heavy mass of concrete forming the stairway abutment was a problem. When excavation undermined this abutment, even the slightest settlement might put negative moment in the bridge span and crack it.

To preclude this, two 14-in. 89-lb I-beams were needled through the

fill, one at the front and one at the rear of the abutment, and brought up snug underneath with chain falls suspended from the deck above. These I-beams extended out well beyond the edges of the steps, where a jack was placed under each end.

Then, with one man watching the steps through a transit, the jacks were cautiously raised until a perceptible rise was noted in the mass of concrete. This load transfer prevented a serious change in footbridge stress conditions. The abutment then was undermined. Ties, track and runner beams were installed under the needle beams and the jack stress was removed.

Meanwhile the general contractor had assembled sections of decked-over Bailey bridging and welded one end to the structural steel frame of the existing building. The underside of this bridging rested on small rollers which in turn ran on timber rails. These rails had been carefully laid out on a uniform slope to compensate for the pitch of the concrete walkway; thus the Bailey bridge remained level while the sloping concrete deck moved outward.

• **Long-reach jacks**—Force for the actual move initially was provided by a pair of short jacks. These made one-ft thrusts until special 5-footers could replace them. The proximity of the bridge columns to the building made this initial pushing arrangement necessary. However, the contractor had cut chases in the existing brick wall through which he could have inserted the longer, more powerful jacks if the smaller ones were unable to perform the first few shoves.

These longer models, designed and made by Spencer, White & Prentis, automatically retract plunger and foot plate whenever pressure is released. Unlike most jacks of their kind, they use water instead of oil and are now veterans of several moving jobs.

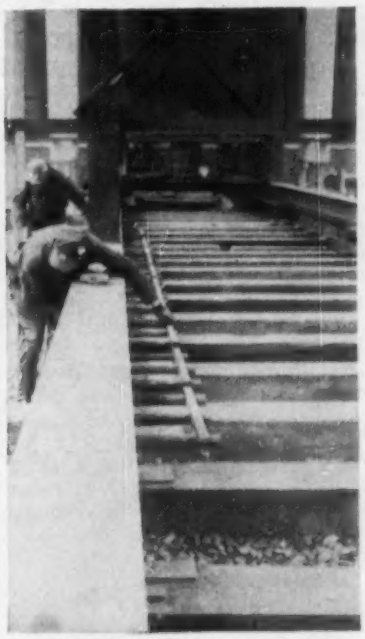
Experience with this jack-and-roller arrangement has taught the contractor a rule of thumb: it requires 2% of the total load to move a structure. In the case of the 450-ton footbridge, 9 tons of pushing effort was required. This put an equalized strain of 4½ tons on each jack, which in turn called for 500 to 600 psi reading on gages.

The entire 60-ft ¾-in. move took less than two hours, putting the four columns directly over new footings that had been prepared in advance. There was no deviation from the intended line but net settlement of the structure was about ⅜ inch.

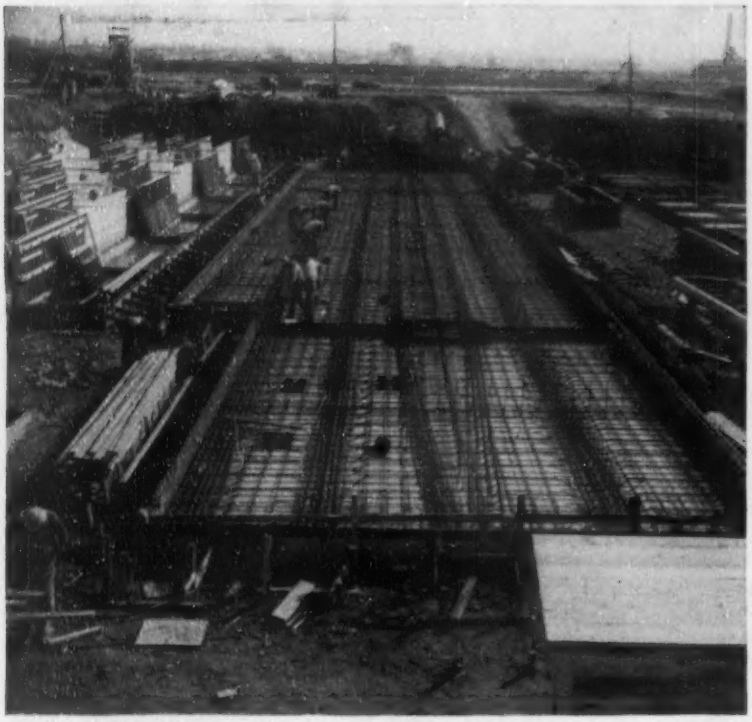
G. A. Anderson, Jr., was superintendent for Hackart Construction Co.; Dan Barrows, supervised for Spencer, White & Prentis; Albert Kahn Associates, were architects and engineers.

NEEDLE BEAM is jacked up under abutment so it can be undermined for installation of cross-ties, track beams, rollers and runner beams.

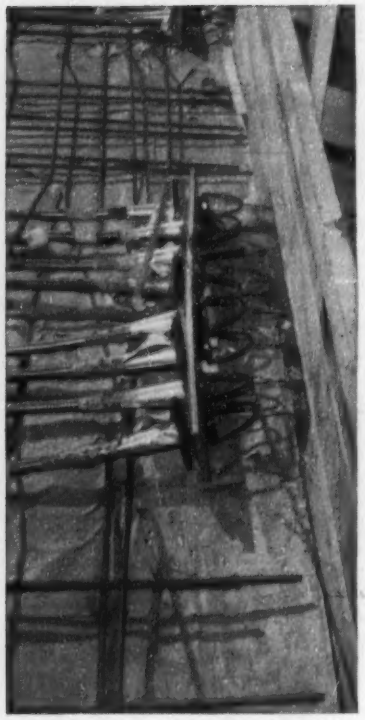
SHORT JACK pushes bridge in one-foot shoves until longer jack at right can be used. Chase in wall was for long jack in case short one wasn't strong enough.



ROLLER ASSEMBLIES are set between track and runner beams. Roller-guide channel out of sight at left is placed flush with beam flanges to keep rollers in line.



CONCRETE BARGES, 180-ft long, were cast in dry for seaplane dock. Limited freeboard and high longitudinal bending stresses led to prestressing top and bottom slabs.



PRESTRESSING CABLES shown before final positioning in end form.

Floating seaplane dock is prestressed

Ens. James Madison, CEC USNR
Assistant Design & Construction Officer 11th Naval District, Public Works Office, San Diego, Calif.

Prestressed concrete barge units are the main elements of a $500,000-floating seaplane dock built for the Navy at San Diego, Calif., to service its biggest and fastest flying boat, the four-engined, R3Y "Tradewind."

The floating dock is connected to a fixed approach pier at the shore by a string of three approach barges, hinged to permit truck access to the dock in spite of tidal action.

The dock proper is formed of two 180-ft long prestressed barges, spaced 16 ft apart to form a slip for seaplane entry. A floating crossover barge at the shore end of the slip provides access between the two units. This crossover barge is removable so that a flying boat attached to its beaching cradle can be hauled through the dock, up an existing seaplane ramp and onto dry land.

In addition to the prestressing, the project contains another notable element in the method used for anchoring the two long barges so that they can ride up and down with the tide.

M. H. Golden Construction Co. of San Diego is building the dock for Consolidated Vultee Aircraft Corp. It is financed by a Naval Industrial Reserve Facility contract between Convair and the government.

Prestressing was utilized by the architect-engineer, Moffat & Nichol, Inc., of Long Beach, in the two 34-ft 5-in. by 180-ft wharf barges, to resolve a design conflict.

Resistance of a high longitudinal bending moment (created by wave action or seismic forces) had to be coupled with a shallow depth (7 ft 4 in.), dictated by an 18-in. maximum allowable freeboard.

A headed-wire type anchorage system and a post-tensioning technique was used. Fifty-six 7-wire and 10-wire Prestressed Concrete Corp. units, containing 85,140 ft of 0.25-in. dia wire, were grouped in flexible steel cables in the upper and lower deck slabs. After the concrete had reached its required 28-day strength of 3,500 psi, the units were tensioned at both ends, maintaining equal elongation.

The wires, with a minimum ultimate tensile strength of 235,000 psi, were stressed to 110,000 psi. After tensioning, the cables were grouted under 100 psi pressure.

In addition to the prestressing wire, 200,000 lb of regular reinforcing steel went into the relatively small dock. The thin wall cellular construction, used for easy ballasting and watertight housing of the mechanical installations, produced a high ratio—60,000 sq ft to 1,340 cu yd—of form area to concrete. Cell walls are 6-in. thick, while top and bottom slabs are 8 and 6½-in. thick, respectively.

• **Barges cast ½ miles away**—The closest feasible casting site for the barges was on a dredged area a few feet above mean sea level, more than three miles down San Diego Bay from the final installation. The site was dished out, and a dike bulldozed. Considerable difficulty developed in obtaining a completely dry casting floor even with an extensive French drain and gravel sump system. Finally, a temporary power installation permitted use of four 105-gpm, ¾hp, automatic float electric sump pumps. For more than three months, the pumps operated about ten minutes every half hour.

• **Barge anchorage**—A unique anchorage system of 24-in. spud pipes, two fixed in each barge and riding with the tide in concrete filled steel shells, actually presented the most difficult construction problem.

After excavation for each anchorage, timber falsework was placed, consist-

THIN CONCRETE WALLS are feature of barge design. Forms for 1,340 cu yd of concrete totaled 60,000 sf, a high ratio. Cellular construction permits easy ballasting and provides watertight housing for mechanical installations.

ing of four temporary piles together with cross members. The 16-ft diameter shell casing was rigged with five "tell-tales"—four on its outer diameter and one concentric with the center of the spud well. The tell-tales were used for leveling and positioning of the casing within a 2-in. tolerance.

With the falsework holding the casing in place, four 14-in., 89-lb H-piles were driven through rings on its outer diameter and bolted to the casings. Backfill, carefully graded to 120 pcf dry measure, was then placed, followed by a tremie concrete cap.

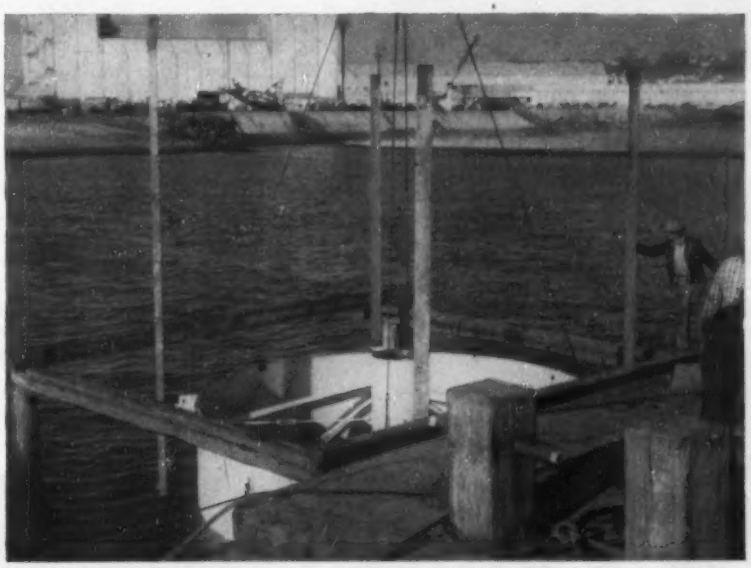
Each barge was then floated into position over the shell casings and the spud pipes lowered into their wells. Reinforcing steel, prefabricated onto the spud pipes, was welded into the barge, and the marriage between the barge and the spuds grouted. Thus, the barge assembly mounted on the spuds can ride up and down the wells throughout a 9-ft tide change.

• **Barge equipment**—Mechanical installations on the barges include fueling and de-fueling lines and pumps, CO_2 fire protection hoses, heat, compressed air and power lines—all provisions for between-flight service.

All hoses are equipped with compressed-air-operated reels. To clear the wings and propellers of the airplane, all services are either flush deck or below the 2½-ft maximum elevation of the docking capstans. Even four 25-ft floodlight standards are hinged to lower to the deck hydraulically.

Mobile crane access was guaranteed by including an H15 truck loading in the design computations.

The U. S. Navy's Bureau of Aeronautics sponsored the project. The design and construction work was carried out under the cognizance of the Bureau of Yards and Docks and the 11th Naval District Public Works Office, through the Naval Industrial Reserve Facilities Branch office in Los Angeles. The Resident Officer-in-Charge of Construction was Commander Frank M. Jansen, CEC USN. Convair was represented on the site by H. A. Smith and Charles U. Giusti, and M. H. Golden by Presley E. Moore.



SPUDS FOR ANCHORING ride up and down with the tide in the center well of steel shells such as this. The shell (being positioned here) will be held in place by steel piles (at the places marked by the vertical timbers) and filled with concrete.

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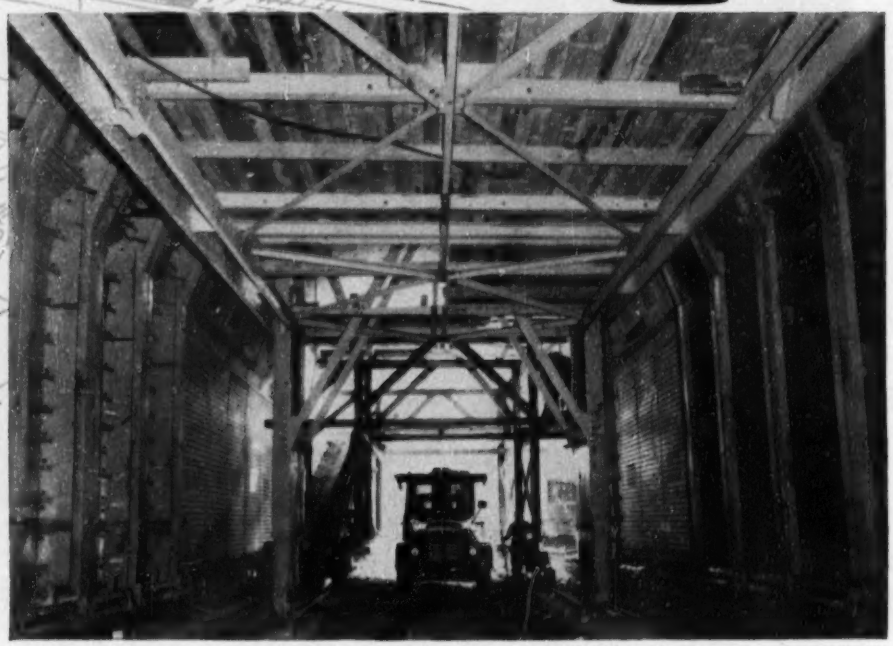

Blaw-Knox Telescopic Forms and Traveler for combined sidewall and arch pour of WEST VIRGINIA TURNPIKE tunnel, 28' 7" wide x 26' 0" high. This vehicular tunnel will be 2664 feet long and will be lined with 30,000 yards of concrete. As the inside surface will be faced with white tile, sidewalls are scarified for stronger tile bond by means of scoring wires welded to sidewall portion of forms.

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Refinery unit on the move

G. R. Lawrence
The Lummus Co.
New York, N. Y.

Highway, waterway and railway carried a 75-ton pressure vessel on its thousand-mile journey from Houston, Tex., to East St. Louis, Ill. Then the huge cylinder took to the air, being hoisted to final location by an outsize guy derrick.

The pressure vessel is a reactor for a catalytic cracking unit, part of an expansion in Socony-Vacuum Oil Company's East St. Louis refinery. Normally the reactor would have been shipped in fabricated sections, to be welded together in the field. But delivery in one piece was necessary on this job because of construction-schedule requirements and restricted working space.

All-rail shipment was ruled out by the reactor's size—56 ft long by 16 ft dia. When loaded on a flat car the vessel would not make railroad clearances. Truck and trailer axle loads would be greater than those allowed by states along the route, so the possibility of an all-highway trip was immediately discarded.

Waterways remained the only alternative. Finding a barge that would handle the load was easy, so the principal problem became one of managing safe transfers on and off the barge. Of the two, getting the reactor off the barge was the most challenging—there being no commercial heavy-lifting equipment at Mississippi waterside in the St. Louis area.

But this gets ahead of the story. Fortunately for the truck-barge-flatcar relay, the city of Houston granted a permit (and a police escort) for trucking the reactor. It rode with one end (75,000 lb) on a low-bed trailer and the other end on a two-axle dolly with 8 tires on each axle. The forward reaction was carried on two tractor axles and two trailer axles.

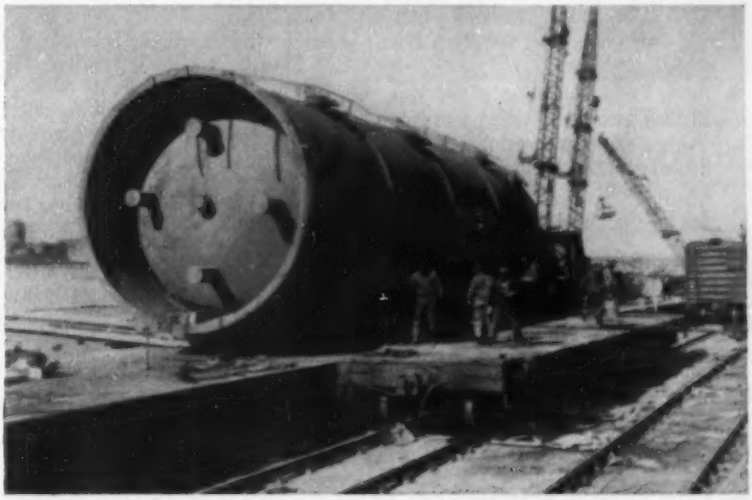
The route was through Houston city streets from the fabricator's shop to a wharf at the Houston ship channel. A barge-mounted A-frame picked up the reactor with its skid cradles and maneuvered it alongside the shipping barge. When the load was centered properly on deck the barge joined a regularly scheduled tow via Intracoastal waterway to New Orleans. There it was transferred to another tow for the Mississippi trip.

• **Mississippi poses problems**—Unlike the placid Houston ship channel,

(*Continued on page 38*)

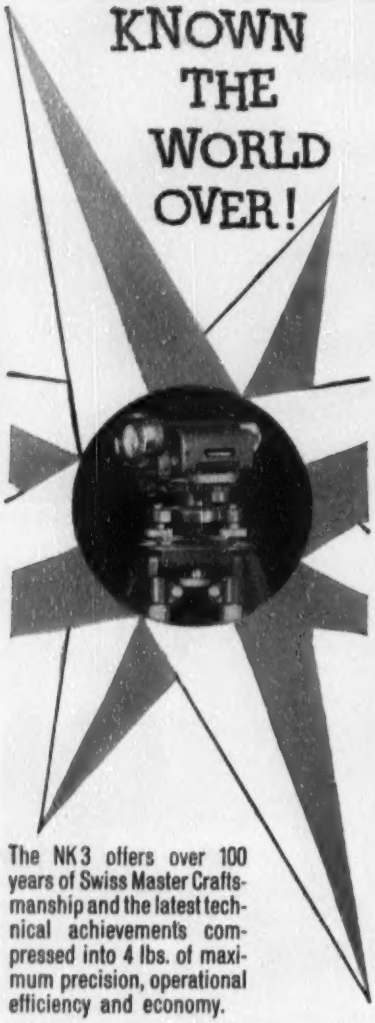
HIGHWAY—Reactor is brought to a Houston ship channel wharf on low-bed trailer and two-axle dolly. Crane gets slings set for lift onto barge.

WATERWAY—Crane barge has A-frame on bow for heavy loads like the reactor, which is centered on barge for trip along Intracoastal Waterway and up the Mississippi.



RAILWAY—Toughest part of trip was skid transfer to flatcar at East St. Louis, Ill. Flatcar is on dock barge serving riverbank railroad-track ramp.

KNOWN THE WORLD OVER!



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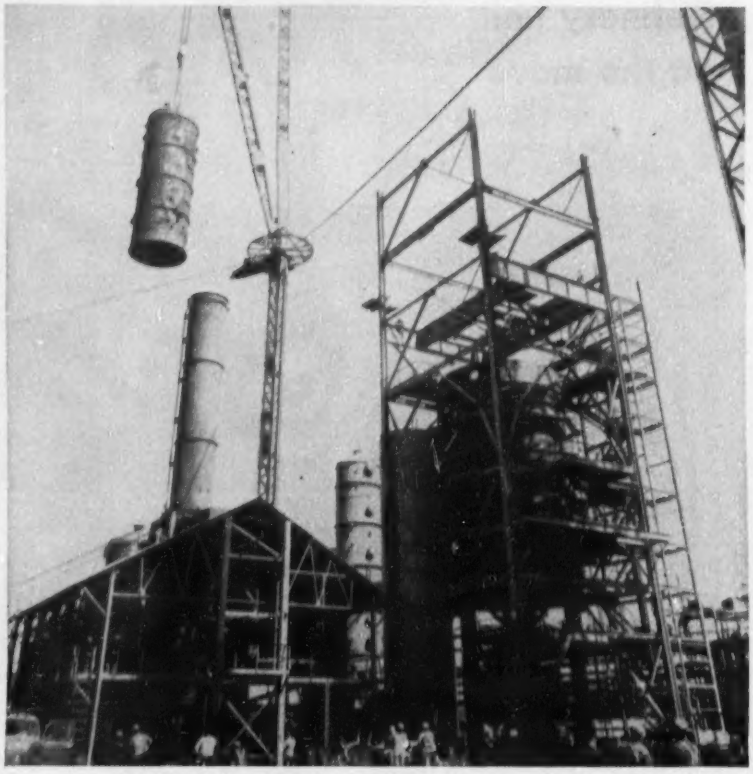

END OF THE RIDE—Lofty guy derrick makes child's play of 75-ton reactor that had been a king-size transportation problem all the way from Texas.

where wharves are maintained with comparative ease, the restless and powerful Mississippi imposes a wide variety of conditions on waterfront construction. Moreover, large items like the reactor rarely come to East St. Louis by barge, so there has been little need of suitable lifting equipment. Since a derrick was not available, a facility was sought for skidding the reactor ashore.

This turned out to be a floating railroad dock installation operated by the St. Louis Terminal Distributing Co. It consists of a track-mounted wedge-shaped railroad trestle, to which are moored two railroad dock barges. The partially submerged wedge-shaped trestle moves along a ramp running parallel to the river; river stages determine the position of the rolling trestle and the attached barges. Railroad cars are shuttled directly from the adjoining yard to the dock barges, which have platforms at car-floor height.

For the reactor transfer a heavy flatcar was positioned on the dock barge and the barge carrying the reactor was brought alongside. Levels of the two barges were equalized by pumping water into the dock barge. The reactor was jacked up; greased skidways were placed under the reactor's four skids; and the reactor was pulled sidewise 46 ft onto the flatcar. Pulling force was a 15-hp dock-mounted winch, working horizontally through snatch blocks and slings to the four skids. No trouble was experienced when the load shifted from one barge to the other, because the skids' 20-ft length distributed the load satisfactorily.

The skids were trimmed down to flatcar width for a 3-mi trip to the refinery. The only clearance problem along the route was a structural column at the refinery entrance. This was removed temporarily before the move began.

Handling at the site was easy with the 200-ton guy derrick. Its 185-ft mast stood on a pedestal 135 ft high. Although this total height is 100 ft less than that for the pedestal and mast of the derrick that erected the atomic submarine test sphere near Schenectady, N. Y., last year, it is one of the largest in the industrial construction field. The Schenectady rig had a 170-ft mast on a 250-ft pedestal (ENR April 9, 1953, p. 32).

After some insulating work at the job site, it was set in place 100 ft above the ground on a partially-erected steel framework. Designer and contractor for the refinery expansion is The Lummus Company. The reactor move was managed by the New York office.

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OWNER.....**R. E. Goodson, Darlington, S. C.**

YARDAGE....**450 per day**

MATERIAL....**Gumbo clay**

FUEL.....**15 gallons, 10 hours**

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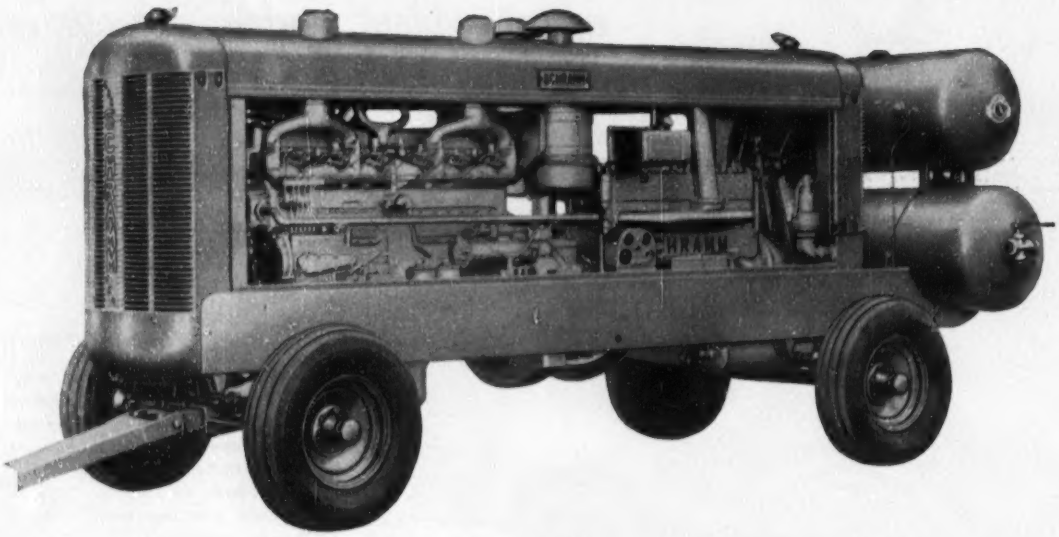

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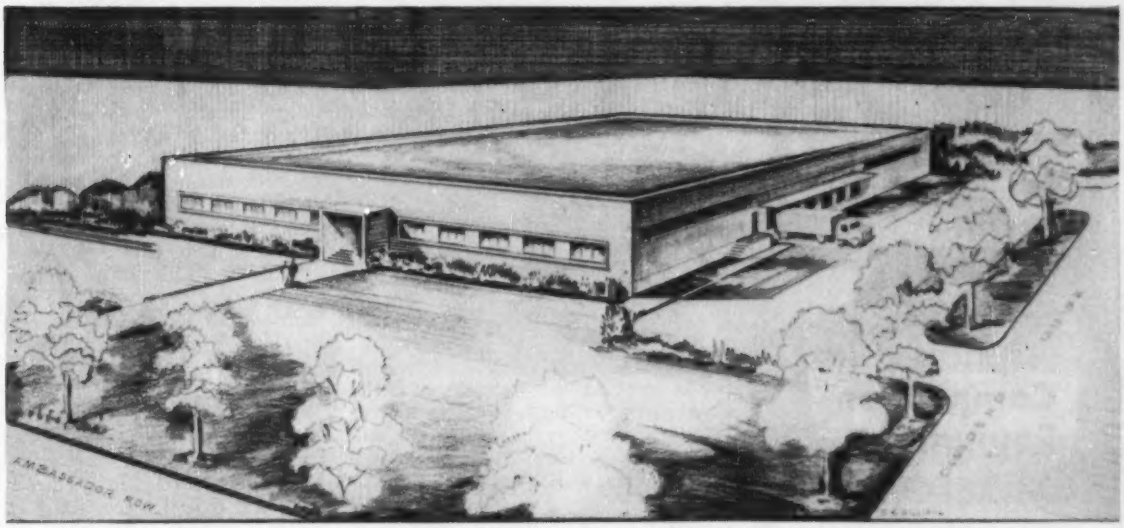

ATTRACTIVE, simple, industrial structures like this proposed Dallas warehouse are the result of experience, as . . .

Cities—industry learn to be good neighbors

Survey indicates planned industrial districts are erasing community objections—Rules for good planning

An ENR staff report

Industrial development in U. S. cities has become a respectable and welcomed addition to the community.

The credit—according to a spot-survey of ENR's sources—goes to a combination of intelligent community planning, real desire by owners to become acceptable "neighbors", and careful planning and good execution by the entire construction industry.

All concerned have discovered that a planned district for industrial development can refute the old—and often well-founded—objections to industrial operations. Industry itself benefits both from increased community acceptance and actually in dollars from better operations; communities can plan ahead far better to handle increased population, traffic and facilities; buildings are better fitted and better built for the overall planning, and the application of previous solutions to current problems.

In some detail, here's a summary of what ENR's reporters found:

• **What is "planned"**—The mere act of zoning an area for industry does not insure a satisfactory union of municipality and plant. The city, in order to attract and hold an industry, must offer far more than available land area. By the same token, industry is obligated to the community far beyond payment of taxes.

The planned district, then, is an area—sometimes several thousands of acres in extent—that has been completely designed expressly for industry, with every improvement, utility and transportation facility essential to industrial operations—but with additional emphasis given to beauty and control of nuisances generally associated with industrial operations.

No planned district has been developed quickly. The studies, planning and land development are extensive and time consuming operations. At present there are more than 125 planned districts across the country and, assuming a conservative six-month average period of planning and development, this accounts for 750 months of engineering and site development work even before ground was broken for construction of new plants.

• **Planned districts had early start**—Although the greatest volume of this type of development has occured since World War II, planned districts are not new. The Central Manufacturing District of Chicago, which has developed six separate areas in its city, is close to 50 years old.

Central Manufacturing offers its plant sites for rent or sale. It finances land and buildings if desired, and, on a fixed percentage basis, will design the plants, layout both site and plant and even handle legal matters.

• **Design requirements**—Here is a list of some of the optimum requirements for planned industrial districts, based on developments in various parts of the country in recent years:

(1) Basic land requirements of planned districts usually start with the maximum allowable percentage of land to be occupied by buildings on an industrial subdivision. On an average this percentage is between 50% and 60%, but it has been found that at the higher figure, optimum parking space is sacrificed.

All districts specify that substantial land areas be set aside for landscaping, and may include park-like areas that are maintained as district "green strips."

Building setbacks are measured from curbs, with the minimum standard of 30 ft prevailing in the newer districts. In some cases, however, where buildings face heavily traveled highways, setbacks have been increased to as much as 100 ft.

More attention is being given to "sight easements" (additional setbacks for buildings on corner lots) to facilitate traffic movement.

Sideyard widths of less than 15 feet

(*Continued on page 42*)

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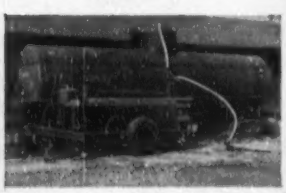

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are considered undesirable by district planners.

• **Streets and utilities**—(2) Arterial roads are planned on the basis of 50 to 80-ft rights of way with a paved width of from 30 to 60 ft. The secondary laterals have a paved width that varies from 28 to 40 ft. Minimum radii for curb returns are set at 25 ft. to facilitate operation of semi-trailer units.

(3) Utilities, in practically all cases, are located in street rights of way, usually in the area between curbs and plant property lines. The trend is for underground services in all cases where practical.

(4) Building restrictions are many. The most significant tendency is the one-story building requirement, although two-story structures are still found to be the rule in several developments.

Another important trend is the compulsory use of masonry exterior treatment. Brick, precast slab and stone masonry are most frequently used for facades, while cinder concrete or cement masonry units are the most popular materials used for walls shielded from streets.

• **Parking problems**—(5) Rail rights of way are found to be most effective when paralleling major through streets. Grade crossings over principal streets are thus held to a minimum. Rail spur rights of way vary in width, depending upon drainage conditions and utility layouts.

Some are as narrow as 14 ft, while others that require drainage trenches or utility easements have been planned at 40 ft.

(6) Parking is the only phase of district planning that is still presenting a hurdle. This factor above all, stresses the necessity for elastic plotting, for with some industries it has been found that car spaces for 30% of employee enrollment have been enough.

In other cases, where an industry is working on a three-shift basis, spaces for 100% of employee enrollment have been inadequate. It is mandatory therefore, that planners study transit facilities, vehicle registrations for the general area, and plant operations before presenting a land requirement figure.

• **Two 1923 projects**—After an initial splurge of district development in the

Bypass segment is closed

The last 97-ft, 40-ton girder goes into place at the Whittier Blvd. grade separation east of Los Angeles, Calif. The through girder span, with ballast deck and 30-ft concrete deck I-beam approaches, is one of five grade separation structures in the Southern Pacific Railroad's $4.3-million freight bypass, under construction for more than two years. The 15-mi route is scheduled to open this month. Eight-and-a-half miles of the bypass route is new construction; the other six-and-a-half-mile section is Union Pacific track to be used jointly by the lines with permission of the ICC.

early 20th century, little was done by way of progress until 1923, when two tracts were dedicated almost simultaneously.

The new districts were the 2,000-acre Fairfax Industrial District of Kansas City, Kan., and the 600-acre Inner Harbor Navigation and Canal district in New Orleans, La.

Then came another period of relative inactivity.

• **Post World War II splurge**—Among the most important of the districts that have resulted in the post-war development race, according to the Urban Land Institute, a private land planning and research organization of Washington, D. C., are:

(1) Airlawn Industrial District, Dallas, Tex., 256 acres.

(2) Bergen County Industrial Terminal, Teterboro, N. J., 210 acres.

(3) Oklahoma City Industrial Districts, Okla., 1,000 acres at various locations.

(4) Peachtree Industrial Blvd. Development, Atlanta, Ga., 1,000 acres

(5) Trinity Industrial District, Dallas, Tex., 1,100 acres.

(6) Santa Fe R. R.'s Los Angeles District, Los Angeles, Wash., five tracts, 3,000 acres.

(7) Penna. R. R.'s Raritan Township District, near Metuchen, N. J., 378 acres.

One of the most recently planned developments is the Brook Hollow Industrial District, also in Dallas. The 1,200-acre district will represent an investment of $6 million excluding land costs by the time it is completed by Windsor Properties, Inc., of Dallas.

The new district will incorporate most of the foregoing design features, even to the 100-ft landscaped set backs for buildings. Several of the plant sites already have been sold, even while utilities and improvements are just getting under way.

The district offers industry a "complete package deal" with the assurance that cost of all streets and utilities is being borne by the developer and that buyers face no future assessments for these services.

Bridge by Act of Congress

A bill authorizing construction of a $24.4-million, six-lane bridge across the Potomac River at Joines Point, Va., near Washington, D. C., has been passed by the House of Representatives and sent to the Senate. Virginia and Maryland are to pay for and maintain approaches to the bridge.

(*Municipal continued on page 44*)

Underneath the River!

THORITE Patching Mortar Crew at work in Air Tunnel under East River, New York.

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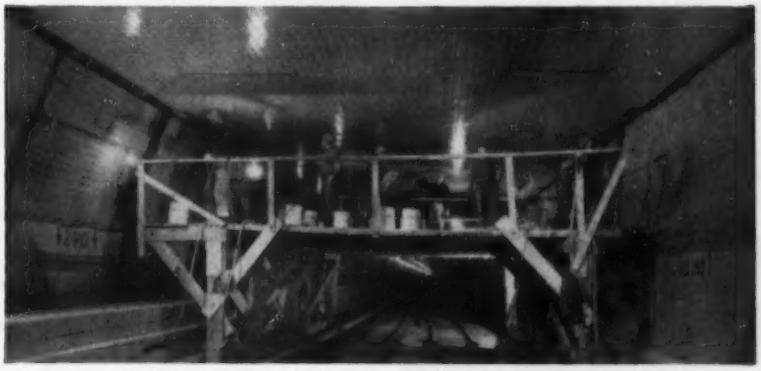
Sealing Drain Pipe Channels in Tunnel with WATERPLUG.



WATERPLUG Crew at work, before placing of tile lining, Battery Tunnels, East River, New York.

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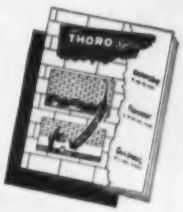

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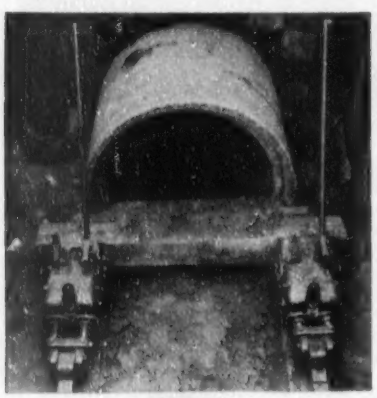

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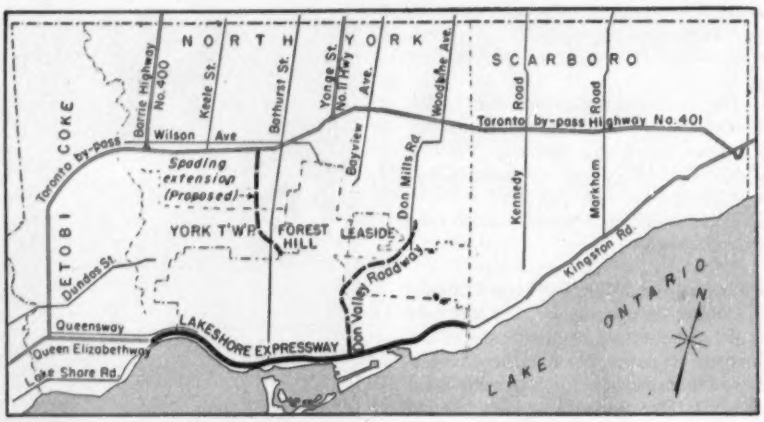


Toronto plans $50-million expressway

East-west traffic through Toronto—heaviest of any Canadian city—is to be accelerated with early construction of a six-lane through expressway along the Lake Ontario waterfront.

Plans for the highway, which will be partly elevated with parking space underneath the elevated section, have been approved by the municipality of metropolitan Toronto, and now await financing arrangements that will include participation by the city, and by the Ontario provincial and Canadian federal governments.

The expressway, scheduled for completion in 1958, will give the city a southern by-pass route which, with connections with northern by-pass express roads now being completed, will encircle it. There will be no traffic lights on these through routes.

The highway, starting at the western end of the city at the junction of two major highways (Queen Elizabeth Way and Lakeshore Road) will enter the city via the two new bridges over the Humber River. The expressway then will skirt Lake Ontario in each direction with roadways measuring 36 ft wide.

• **Part of route on new fill**—To accommodate the new road as it passes eastward from the Humber, part of Lake Ontario will be filled in for a one-mile stretch. The road over the new land will incline upward until it enters downtown Toronto 25 ft above the grade of Fleet St., the existing east-west artery.

As the highway approaches the Don River in the eastern section of the city, it gradually will decline to ground level past the river and continue farther east to connect with Kingston Road and the dual lane express highway to Montreal.

The serpentine easternmost section ending at the Kingston Road connection, was added after the first announcement, of plans because of public clamor that the east end of the city had been neglected. Original cost of the Lakeshore Expressway was set at $49.8 million, and the serpentine addition is to cost another $1,397 without reckoning the cost of acquisition of land.

Traffic into and out of Toronto at its western lakeshore limits has been a bottleneck for years. As traffic has grown in recent years, this bottleneck has become worse. Stretches of lakeshore road within the city were widened, but improvements only added congestion at the old Humber River bridge. The new construction is expected to alleviate the condition.

Under the present construction program there will be nine ramps for westbound traffic, and eight for eastbound, with five interchanges at major intersections. The road will be eleven miles long, and is designed to carry some 100,000 cars daily at a 50 mph speed.

• **Parking provided**—Provision for parking spaces for 5,000 cars per day is included in the plans, part of this—for 2,500 cars—will be at the western end of the highway.

Double-deck parking will be provided under elevated sections in the downtown area, with ramps from ground level lending access to a mezzanine parking deck and a second level under the mezzanine. These spaces will accommodate the remaining 2,500 automobiles and will be operated by the Toronto Parking Authority.

There will be no direct access from the parking areas to the expressway.

• **Service roads**—Paralleling the expressway will be a six-lane service route which will be constructed on the straightened-out sections of existing east-west traffic arteries close to the lakeshore. In addition there will be extensions to other streets, which link the west end of the city with other highways.

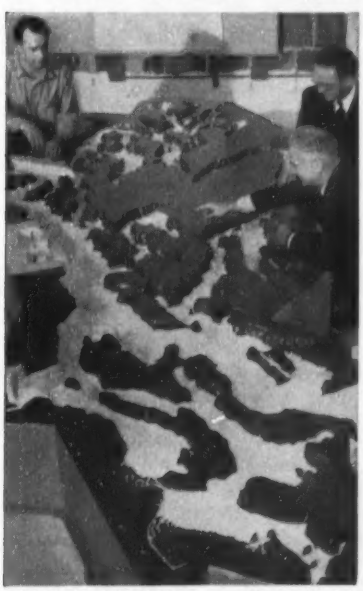
Costs of the Lakeshore Expressway include relocation of existing roads, acquisition of right-of-way, parkland rehabilitation and alteration of utilities. Interchanges are being planned for simplicity, and there are a number of pedestrian overpasses above service roads and expressway to allow public access to the Lake Ontario beach.

The plan was developed by the Toronto engineering firm of Margison, Babcock & Associates, who were awarded the job on a low-bid basis this year.

U. of W. tide studies go on—so does Seattle sewage tiff

Hopes for an early peace in a year-long dispute between the mayor and city engineer, and the city council of Seattle (ENR May 6, p. 60), over a sewage disposal program were dashed when the State Pollution Control Commission refused to aprove plans for the council-backed Alki Point Treatment plant.

The dispute started when Mayor Allan Pomeroy, acting on the advice of City Engineer W. E. Parker, opposed a plan accepted by the city council for construction of the plant providing only primary treatment before disposal through a long outfall line emptying into deep water off Puget Sound.



RUGGED SEASCAPE complicates Seattle sewage disposal plans.

The chief official and the engineer, backed primarily by fishing interests, recommended secondary treatment, thus eliminating need for the outfall pipe.

"Scope of project, as now planned, does not conform with an agreement reached by city officials and the commission at a 1950 conference," Don Eastvold, state attorney general, said. The 1950 agreement, according to the commisison, held that "before deep water disposal at the Alki plant can be given an adequate trial, it is necessary to collect the sewage from the entire area for which the plant's discharge is planned."

Parker, who took office last year, has taken pretty much this same position, but the city council, most of whose nine members were active in 1950, proposed to build a plant which initially would collect sewage from only two of the 10 trunk sewers that now have outfalls in the Alki Pont and West Seattle area.

Councilman M. B. Mitchell, chairman of the council's streets and sewers committee, charged that the commission had repudiated an agreement under which the city should give the plant a tryout on a small scale. Construction enabling the plant to handle sewage from all 10 sewers would add at least $1 million to the cost of the project, he declared.

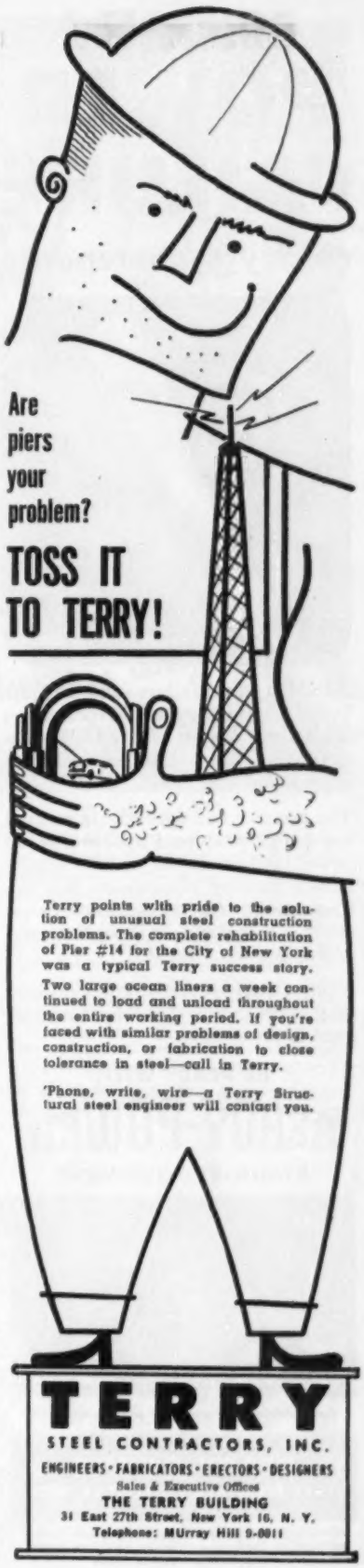
"The only way we could possibly raise the sum required is to submit a bond issue at the fall election," said Mitchell. In the meantime, beaches in the area will continue to be closed to swimmers.

Mitchell plans to make recommendations shortly on appointment of a board of consulting engineers to review plans for a long-range sewage disposal program estimated to cost $25 million. The board will be asked to decide whether complete treatment of the city's sewage is necessary, as contended by Parker and Pomeroy, or whether primary treatment will be sufficient.

Sewage out of sales tax?

Yuma, Ariz., city councilmen have announced plans for a $1.6-million sewer expansion paying off the bonds with proceeds from a city sales tax.

If a pending Arizona Supreme Court ruling on the legality of sales tax revenue for sewer construction is unfavorable, the city will run a special bond election.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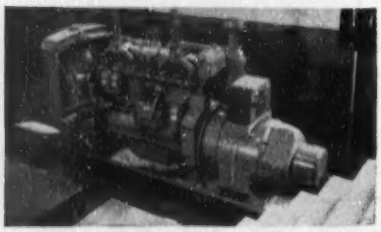

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INTERNATIONAL

Low prices cited in highway hearing, Ontario roads department reorganized

"Ridiculously low" prices for highway work in Ontario were charged in a 34-page brief submitted to the Select Committee of the Ontario Legislature (investigating the Ontario Highways Department, ENR June 3, 1954 p. 63) by the Ontario Road Builders Association. The Committee has resumed its sittings in Toronto, following a tour of northern Ontario. A complete reorganization of the Ontario Department of Highways and resignation of contract engineer W. A. MacLachlan was announced last month following a survey by a management consultant firm, J. D. Woods & Gordon Ltd., Toronto. The survey resulted from discoveries of overpayments to road contractors in recent years, unearthed in the past few months.

Under the reorganization, administration of the department will be headed by deputy minister M. A. Elson and chief engineer W. A. Clarke. Administration is then broken down into five sections: planning; services; finance, a registry of motor vehicles and personnel.

Other branches of the department as reorganized are construction engineers, bridge, maintenance and municipal engineers. These new branches will have several other officials attached to them to take charge of specialized phases of departmental service. Away from the Toronto headoffices and throughout the province there will be an administration composed of 18 division engineers and 19 municipal engineers.

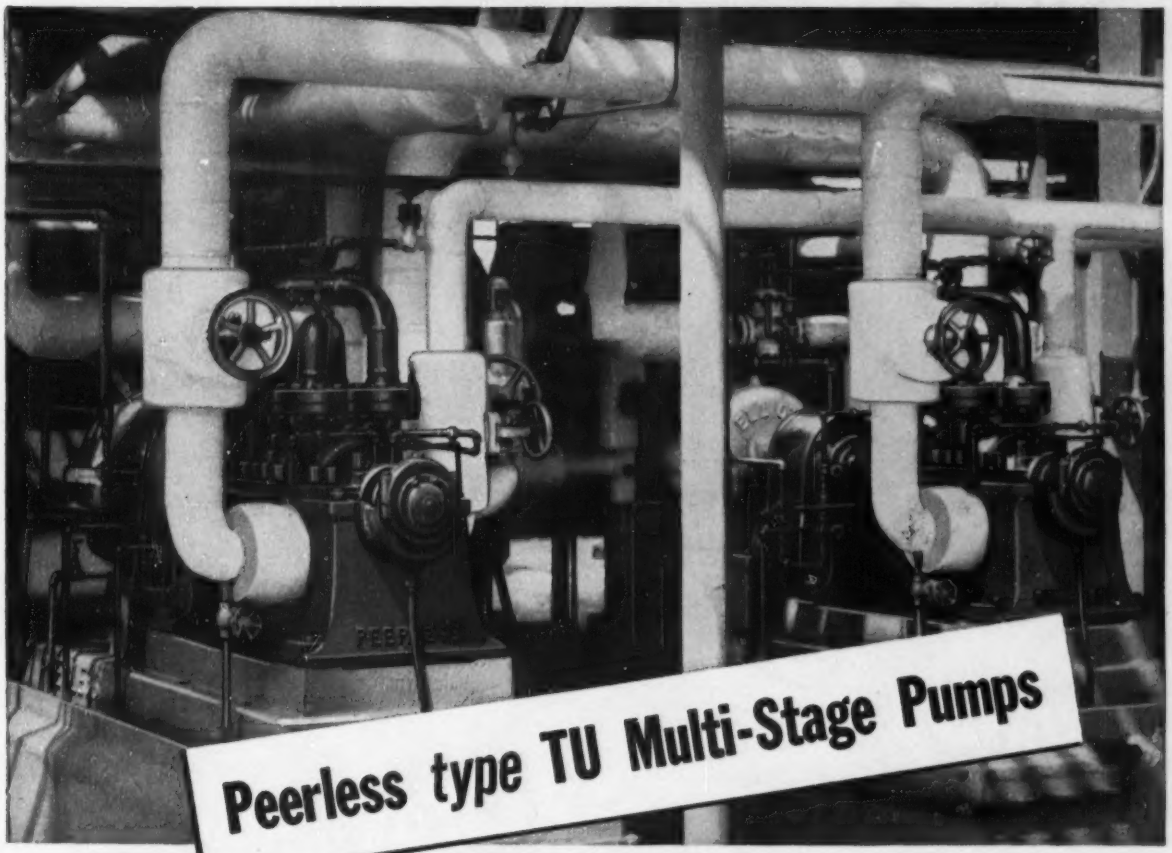
Most of the personnel for the new setup has been taken from within the department, with few outside appointments made. Seven of the division engineers are new appointments and four have been transferred from other divisions.

• **Cites low prices**—In the recent brief D. H. Storms, first vice president of the Ontario Road Builders Association, said that Highways Minister Doucett had agreed with him about prices being too low but this was later categorically denied by the Minister. The Minister testified for ninety minutes before the Committee and denied also that he had at any time personally profited by his position as the Minister of Highways. The Association endorsed the recommendations of J. D. Woods & Gordon and criticized what they described as untidy methods in the Department. They alleged that the Department, by encouraging multiple bids, had forced contractors to take on jobs at ridiculously low prices. The Association also suggested that the Department should get out of the asphalt business but this was defended by former Deputy Minister Millar who said that the operation of the province's own plant helped to keep down asphalt prices in Ontario. The Association further suggested that the contracts of the Highway Department should be rewritten to shift some of the responsibility for the completion of contracts to the Department from the shoulders of the contractor, stating that present contracts are too one-sided. They recommended that contractors should themselves supply such materials as cement, stone and asphalt, rather than the Department.

• **Overpayments**—As the Committee pursued its investigations, it was revealed that the Department had overpaid contractors by $2,500,000. In one instance, overpayments of $940,000 had been made on three contracts held by the Wolfe Construction Company of Timmins, Ont. This company had been taken over by the London-Phoenix bonding group of fidelity companies, after it could not complete its contract work on the Trans-Canada Highway along the north shore of Lake Superior. Another bonding company, U. S. Fidelity and Guarantee Company, was threatened with a Speaker's Warrant if they failed to have a representative appear before the Committee voluntarily in order to give information on bonding practices. U. S. Fidelity had taken over the construction jobs of the Fort York Construction Company, on the new highway to Atikokan, in western Ontario, and in turn had handed over the work to the Malvern Construction Co., whose president is a Progressive Conservative member of Parliament.

• **Multiple bids defended**—J. D. Millar, former Deputy Minister of the Department, stoutly defended the multiple bidding practice of the Department as a protection for the province, in further evidence to the

(Continued on page 48)



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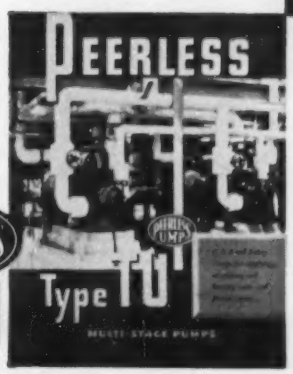

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Committee. He placed before the committee details of what he charged was an attempt by contractors to force the province to pay higher prices for highway construction. After explaining some of these details to the Committee, Mr. Millar said "My own word for it is that it was a combine; the contractors had gotten their heads together and decided to keep the bids up." Mr. Millar appealed to the Committee to clear the good names of the vast majority of the thousands of employees of the Department. After denying that the Department had no long range plan, as suggested in the Woods Gordon Report, and other allegations made about the Department, Mr. Millar stated that it was his opinion that contractors were not bidding below cost and that there was no fictional classification of materials of which he was aware. "That is the record of the Department in the ten years and eleven months that I was deputy. I am proud of the record and of the efforts of the five thousand conscientious men and women who have made it possible." He added that he had served under two ministers as deputy and had never received any order, either direct or implied, to perform any unethical or unprofessional act.

Concrete symposium presents variety of papers on control

England's Cement and Concrete Association has published an interesting variety of papers taken from its symposium on mix design and quality control of Concrete held in May in London. Obtainable from the Cement and Concrete Association, 52 Grosvenor Gardens, London S.W. 1, England, the proceedings incorporated the following papers:

Basic principles of concrete mix design; Concrete mixes for various building purposes; Design of high-strength concrete mixes; The design of concrete mixes on the basis of flexural strength; Mix design and abrasion resistance of concrete; Mix design for frost resistance; Design of mixes for compaction by surface vibrators; The effect of the vacuum process on concrete mix design; Steam curing and its effect upon mix design; A classification of natural sands and its use in concrete mix design; The control of concrete quality: a review of the present position; Methods of achieving control of quality; Control of concrete quality on the small site; Quality control and its effect on structural design; Quality control for precast concrete; Economic factors in the choice of aggregate grading in relation to quality control; Quality control for road and airfield construction; Quality control for mass concrete with special reference to dams and related hydraulic structures; Ready-mixed concrete: quality control refinements; Some problems involved in destructive and non-destructive testing of concrete; The application of statistics to concrete quality; and Methods of specifying concrete.

250-ft radio telescope takes shape in England

Manchester University's $1.1-million radio telescope—claimed to be the most powerful one in the world—is expected to be in service by the end of next year at Jodrell Bank, Cheshire, England.

The new telescope—250 ft in diameter and 62½ ft deep—is a huge copper-mesh bowl weighing 30 tons and suspended between two 180-ft towers. The 90-ft foundations, containing about 4,000 tons of concrete and about 700 tons of steel, have been completed. Work on the two main towers is expected to be finished by October of this year.

The telescope, which works on the principle of a radar receiver, was designed to locate and investigate radio waves reaching earth from outer space. The new equipment will be used by the university's radio astronomy staff.

New mountain railroad line to link east-west Colombia

Colombia—at present giving top priority to the development of its railroad system—has decided to link-up the eastern and western network by means of a 64.5-mi line between Armenia and Ibague in the Central Cordillera mountains.

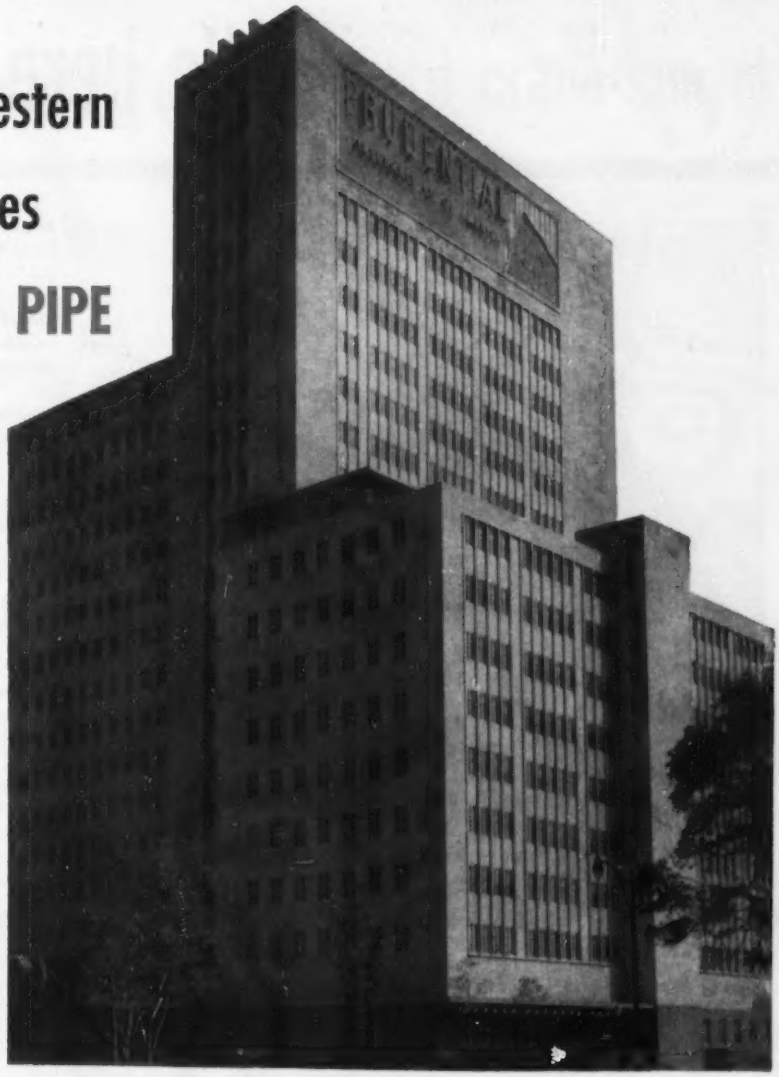
The new line, to be built with the yard gauge because of the mountainous territory, will cost close to $40 million. One of the main projects will be a $2.5-million tunnel.

Bids on the work will be called for as soon as the choice between two crossings of the mountain range is made.

Meanwhile, in another recent move toward building up rail facilities, Colombia decided to extend the Magdalena Valley Railroad—now under construction—beyond its originally planned terminal at Capulco on the lower Magdalena River. The new addition will take the line straight through to the Caribbean Sea, reportedly to Santa Marta.

(*International continued on page 52*)

Prudential Southwestern Home Office uses WROUGHT IRON PIPE

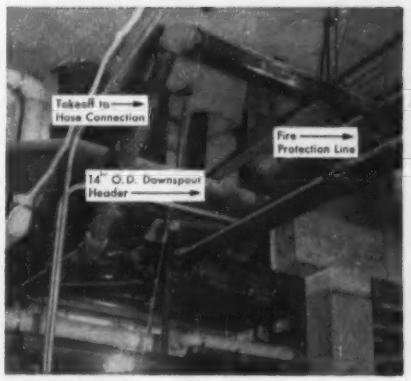


In the new Prudential Southwestern Home Office Building, Houston, Texas, the designers' insistence on piping durability and economy through long-life service, is reflected in the extensive use of wrought iron pipe. More than 135 tons of this time-tested material was used in the following services:

- All interior hot and cold water lines over 3 inches
- Chilled water lines for air conditioning system
- Connecting lines to and from water softener
- All water piping, supply and recirculating lines in the swimming pool
- Water supply lines from mains to cooling tower
- Downspouts

The reasons for the extensive use of longer-lasting wrought iron pipe are self-evident when you consider the consequences of pipe failure. Repair includes material costs *plus* the wages for pipe fitter, mason, plasterer, carpenter and painter. In other words, while it takes only one to install pipe, it takes five to repair it. How wrought iron pipe protects against premature failures is told in our booklet, "The ABC's of Wrought Iron." Write for your copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Department: New York, N.Y.



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It's here! It's NEW

In ROCK or dirt this 1½-yard rock-type dipper, backed by a heavy-duty, one-piece chain crowd and sturdy shipper shaft, has powerful crowd plus easy operation and fast digging cycle.

NEW **Adjustable Self-Cleaning Crawlers** with hardened lugs and with rollers and sprocket shafts bronze bushed.

NEW **Shoe-Type Steering Brakes** permit gradual or sharp turns without stopping to shift jaw clutches.

NEW **Big-Capacity Hoist Drums,** mounted in tandem, will spool up to 470 feet of ¾" cable or 385 feet of ⅞" cable.

NEW **Internal Two-Shoe Clutches** on main drums are power booster controlled through mechanical linkage.

NEW **Worm Boom Hoist** on the Erectors Model is vertically mounted and is independent of all other operations.

NEW **Hydraulic Fluid Coupling,** with a two-plate disconnect clutch, cushions shock in the power take-off.

NEW **All-Weather Steel Cab** of heavy gauge steel and safety glass completely encloses and protects machinery and operator.

The long, wide crawlers, providing maximum stability and the natural built-in balance, makes the 70 or 700 an ideal dragline for stripping, loading or ditching.

As a hoe it will dig 27 feet below crawlers — dump at 14½ feet above. Here a 54-inch-wide dipper digs into hard blue clay with a hump boom.

– a low-weight, low-price 1½-yard crane-shovel

introducing new models

70 standard

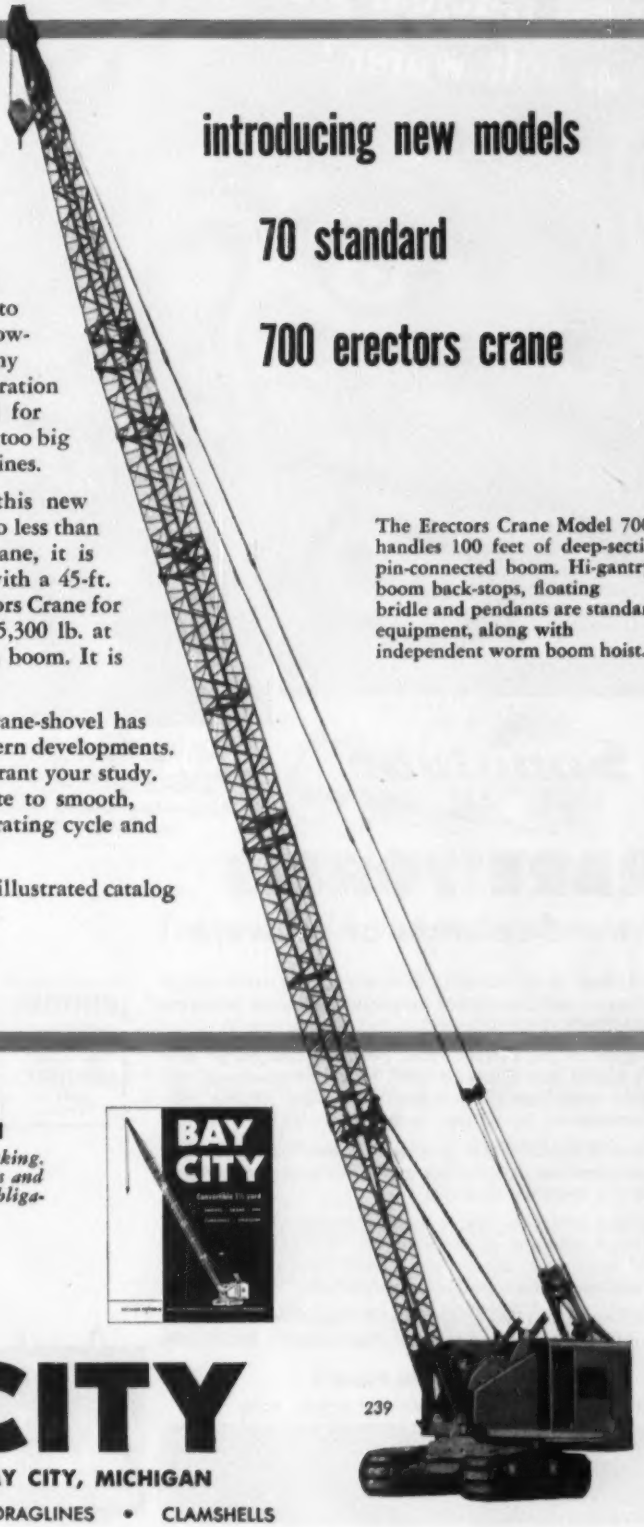
700 erectors crane

Now, for the first time BAY CITY is offering this 1½-yard crane-shovel to fill the need for a large-capacity, low-weight, low-price machine on many jobs. Thus, it offers economical operation on many types of work too small for larger capacity, heavier machines or too big for smaller capacity, lighter machines.

With a weight around 40 tons, this new crane-shovel can be stripped down to less than 25 tons for trailer moves. As a crane, it is rated at 46,000 lb. at 12-ft. radius with a 45-ft. boom. But it is also built as an Erectors Crane for long-boom work and can handle 25,300 lb. at 25-ft. radius at the end of a 100-ft. boom. It is fully convertible.

Completely field tested this new crane-shovel has many outstanding features and modern developments. Some are listed here. They will warrant your study. These and other features contribute to smooth, efficient performance with fast-operating cycle and maximum economy.

For complete information write for illustrated catalog or see your nearest BAY CITY dealer.



The Erectors Crane Model 700 handles 100 feet of deep-section pin-connected boom. Hi-gantry, boom back-stops, floating bridle and pendants are standard equipment, along with independent worm boom hoist.

WRITE for CATALOG 70/700-A-1

This 16-page catalog is yours for the asking. It tells the story of the 70/700 in pictures and text. Write for your copy today — no obligation.

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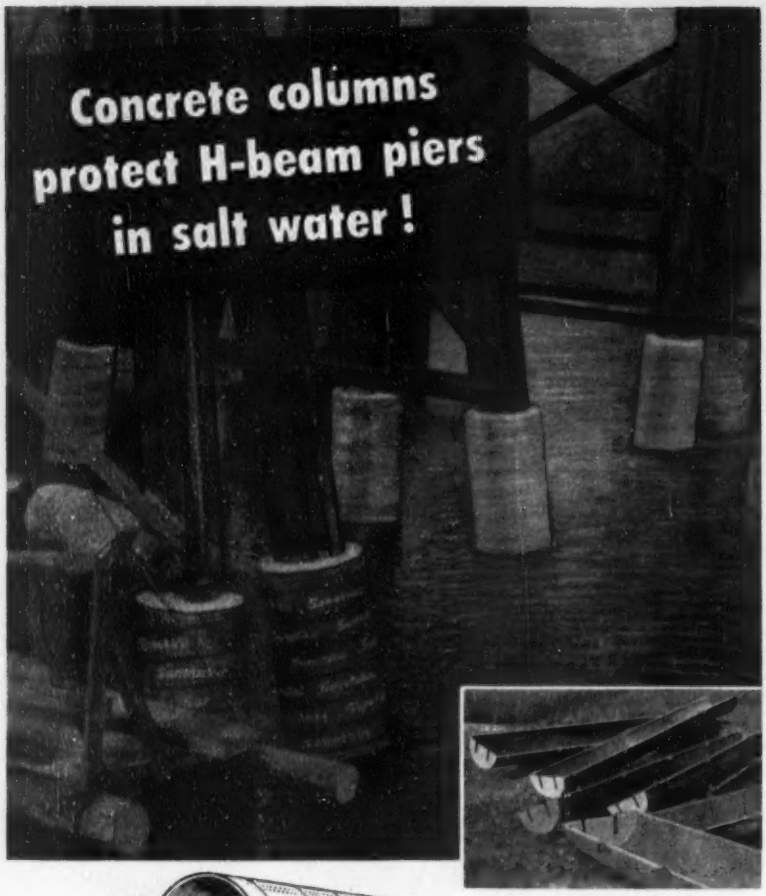

Sonotube®

Military Road Bridge, Marine Corps Recruit Depot, Parris Island, S. C.
Espy Paving and Construction Co., contractors, Savannah, Georgia.
Inset: Metal pre-forms, note slots to accommodate H-beam.

FIBRE FORMS

for round columns of concrete

At Parris Island, S. C. the steel H-beam piers for the structure illustrated were encased in round concrete columns formed with SONOTUBES.

With 24" I.D. SONOTUBE Fibre Forms inside metal preforms, the metal was removed soon after the concrete was poured, and used again on other piers thus saving job-time and money.

The low cost SONOTUBES, lengths varying from 6' to 14', were not stripped but remained in place allowing the concrete to cure for the specified 28 days.

Whatever the structure, for a fast, economical method of forming round columns of concrete, use SONOTUBE Fibre Forms and save time, money and labor! Approved by contractors, engineers and architects everywhere.

In 31 sizes, from 1" to 36" I.D. up to 50' long. Can be ordered in specified lengths or sawed to your requirements on the job.

DENFORM reusable capital form designed for use with **SONOTUBES.** Write for details

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INTERNATIONAL

Saskatchewan offers plan for financing dam scheme

The Saskatchewan government has offered to contribute nearly $73 million toward financing the $135-million South Saskatchewan River Dam project.

Saskatchewan reportedly agrees with the federal government's estimate of the project's cost, including $80 million for the dam itself, $35 million for the irrigation system, and $20 million for the power plant. And although Saskatchewan considers the figure high, it will accept a $17.8-million estimate as representing the dam's value to the province in terms of power generation.

Premier T. C. Douglas, releasing details of the financial plan, said that Saskatchewan's offer should encourage the Canadian government—which would put up the remaining $62-million—to start construction at the earliest possible date.

U. S. team works out plan for irrigation in Lebanon

A 23-member Bureau of Reclamation team has returned from Lebanon after working out a $100-million plan to generate 171,000 kw and irrigate 53,000 acres with unused Litani River waters.

The plan calls for transmountain water diversion, a series of dams, reservoirs, canals and 6 power plants. A tunnel will divert part of the stream flow through a north-south mountain range and into an arid coastal plain for irrigation.

Financing of the project has not been arranged, but it is expected that the Lebanese government, private enterprise, the World Bank and the U S. will all join in providing funds.

The engineering task force—largest bureau team ever sent abroad on a reclamation project—was assigned to the 2-year mission under the Point Four plan.

Ceylon hydro project draws International Bank backing

The International Bank for Reconstruction and Development has made its first loan—$19.1 million—to Ceylon. The money will go toward work on the second stage of the Aberdeen-Laksapana hydro-electric scheme, designed to supply additional power to the southwestern part of the island.

The main purpose of the Aberdeen-Laksapana project is to develop the power potential of the Kehelgamu and Maskeliya rivers at a point about

50 miles east of Colombo, the capital. Total generating capacity of this development eventually will reach 150,000 kw.

This new stage of the project—to be financed partially by the loan—includes (1) construction of a second dam to store additional water from the Kehelgamu and to regulate its flow to the power station; (2) addition of 25,000 kw to the generating capacity of the existing power plant; (3) construction of transmission lines and distribution facilities. Total cost of the 4-year job: about $31.5 million.

The first part of the scheme was completed in 1951. It consisted of construction of a 25,000-kw plant in the Laksapana Valley, a diversion dam and tunnel to conduct water from the Kehelgamu to the plant, and a transmission line to Colombo.

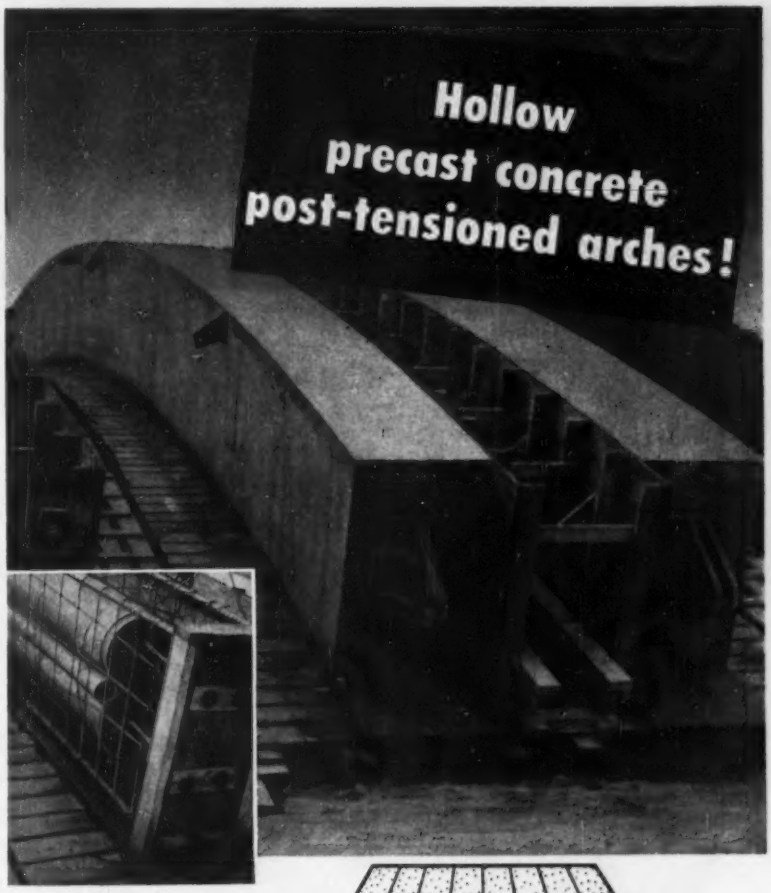
International briefs . . .

• **Cuban tourist center**—A multi-million dollar tourist-residential center similar to that of Ft. Lauderdale, Fla., is to be built at Port of Dominicas, located between Mariel and Cabanas in Cuba's Pinar del Rio province. Promoters—including U. S. investors—spent $200,000 for the 66,000-acre site, which is the highest price ever paid for Cuban real estate.

• **Difficulties delay project**—Contractor failures on the Roxburgh hydroelectric undertaking in the southern part of New Zealand reportedly will increase costs by at least $3 million and delay completion by 18 months to two years. Morrison-Knudsen may be asked to help finish the work, which includes diversion of the Clutha River. The original contractors (Swiss and British firms) are said to have underestimated.

• **Crete airbase activity**—Knappen-Tippetts-Abbett-McCarthy has been hired by the Joint Construction Agency to design an airbase on Crete. A five-man engineering team from the firm already has left for the area to start work on site examination, surveys, foundation explorations.

• **Subway contract sought**—The Utah Construction Co. has completed a preliminary survey on the proposed Melbourne subway and reportedly is trying to obtain the contract. According to the U. S. firm, the job could be completed by 1956. State government officials, however, say that a shortage of funds may delay a worldwide call for bids on the project for a number of years.



Arch sections for aircraft maintenance, Naval Air Station, Oceana, Va.
Virginia Engineering Co., contractors—Newport News, Va.
Design Engineer: W. W. Slocum, Newark, N. J.
Inset: Form ready for precasting. SONOVOIDS in place.

SONOVOID

FIBRE TUBES

for voids in concrete construction

At Oceana, Va. Naval Air Station, the roof of the aircraft maintenance hangar was constructed of eleven parabolic precast concrete arches containing voids formed by SONOVOID Fibre Tubes. Each arch spans 150′ and was cast in two sections (illustrated). Each section: peripheral length 82′, width 1′9″, depth 3′, weight approximately 22 tons. Lifted into place with cranes and bolted together to form complete arch.

SONOVOID Fibre Tubes of 4″, 11″ and 13.35″ O.D. were used to save reinforcing steel, reduce dead weight and save concrete.

To save money and materials, use SONOVOIDS to form voids in concrete bridge deck, wall, floor and roof construction. Reduce weight without impairing structural strength!

Supplied in specified lengths or sawed to your requirements on the job. Sizes: 2″ to 36.9″ O.D. up to 50′ long.

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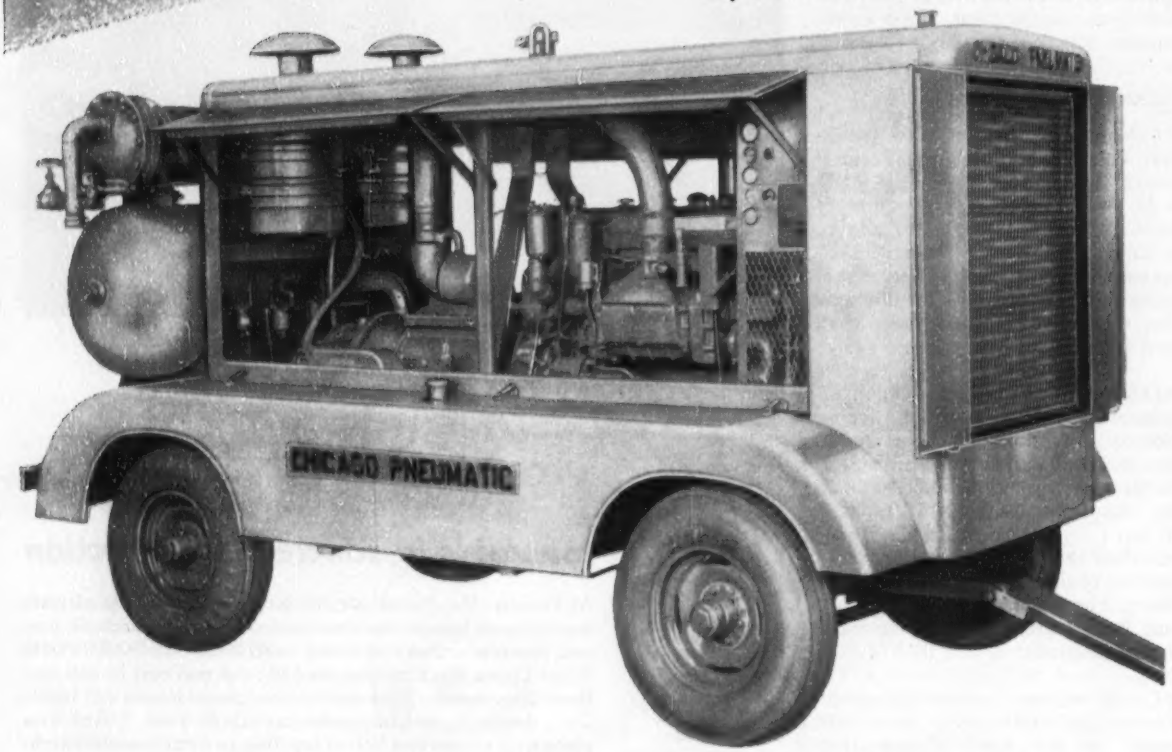
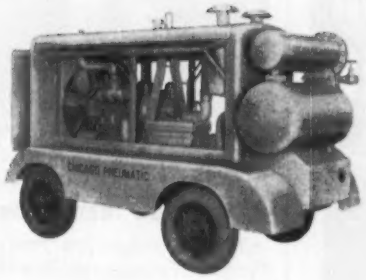


. . . CP ROTARY COMPRESSORS

After 18 months of proving themselves on the job, CP Power Vane Rotary Compressors are now available in sizes of 125, 210, 365, and 600 cfm. Having no pistons, connecting rods, valves or other reciprocating parts to maintain, they afford thousands of hours of trouble-free service. Their oil injection system provides copious lubrication, cools the air during compression and assures long rotor blade life . . . yet oil consumption is remarkably low and air is delivered practically oil-free.

Smooth running CP Rotary Compressors also have a variable speed capacity regulator which prolongs life and reduces wear and tear . . . increases over-all economy. CP Rotaries are available with Hercules gasoline and General Motors diesel engines. For more information, write for Bulletin SP-3084-2. *Chicago Pneumatic Tool Company, 8 East 44th Street, New York 17, N. Y.*

THAN PISTON TYPES OF HALF THE CAPACITY...



Three ways better...

1 **Tapered roller main bearings** afford positive positioning of rotor between compressor cylinder end plates.

2 **Safety friction drive** between engine and compressor limits transmitted torque—provides added protection for engine and compressor against shock.

3 **Perfect alignment of all parts** is afforded by metal-to-metal joining of housings and fitted-step construction of mating surfaces and shaft-mounted parts.

IDEAL WHERE **PORTABILITY** AND **RELIABILITY** COUNT!

- CP Portable Power Vane Rotary Compressors occupy 30% less space than equivalent piston type machines.
- Compressor weighs less, is more compact than piston type machines of half the capacity.
- Due to oil injection, discharge air is 100° lower than in equivalent piston type compressors.
- Spring suspension, automotive steering on four wheel models, tilt operation, compactness and light weight make CP Rotary Compressors ideal for towing and maneuvering anywhere.
- Rotary shaft seal at drive end excludes dirt from shaft bearings.
- Automatic safety controls stop engine in case of excessive water temperature or oil failure.

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REDUCE BLADE WEAR AND BREAKAGE ON TOUGH, ROCKY JOBS...

Like all ESCO blades, this sectional ESCO Dozer Blade is cast of special work-hardening manganese steel.

ESCO Cast Blades Often Outlast 5 or More Rolled Steel Blades

The shock and pounding of rough work develops an extremely hard wear-resistant surface on *ESCO* Blades —because they are *cast* of special *work-hardening* manganese steel.

Working an *ESCO* blade on dozers, graders or scrapers actually makes the surface more wear resistant. Yet the blade core retains high impact toughness regardless of age or usage. That's why on tough, rocky jobs *ESCO* Cast Blades reduce blade breakage—regardless of work speed—and give far longer life than any rolled steel blade. *ESCO* Cast Blades often outlast five or more rolled steel blades. Result: Less downtime for repair, lower blade replacement cost—a definite increase in productive hours per dollar invested.

ESCO Blades fit all popular makes of dozers, angledozers, graders and scrapers. If you want to cut *your* operating costs, use *ESCO* Work-Hardening Cast Manganese Blades on your toughest jobs. For details, see your nearest *ESCO* dealer, or write direct.

ESCO

Offices and Warehouses: Honolulu, Hawaii; Houston, Texas; New York, New York; Los Angeles, San Francisco, California; Seattle, Spokane, Washington; Centralia, Pennsylvania; Eugene, Oregon; Salt Lake City, Utah. In Canada: Vancouver, British Columbia, and Toronto, Ontario.

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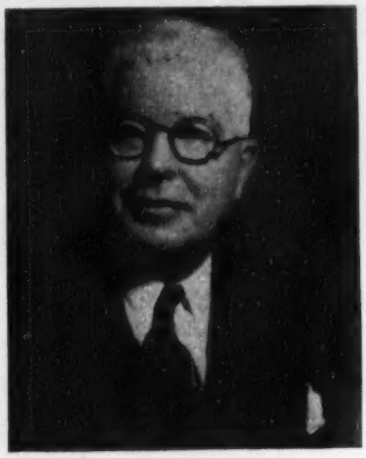
MEN AND JOBS



J. Wright Taussig completes 46 years on foundation work

The retirement on June 30 of J. Wright Taussig, senior vice president of Raymond Concrete Pile Co., marked the completion of a civil engineering business career that began in 1908. At that time, just after graduating in civil engineering from Cornell University, he got a job as assistant superintendent on one of Raymond's foundation jobs.

By 1912 Mr. Taussig had opened the Kansas City office of the company as district manager. He returned to New York in 1914, and in 1926 was elected a vice president. In the following years he has devoted his time to sales, contract negotiations and supervision of design and specifications for jobs both in the U. S. and many foreign countries. Mr. Taussig will continue to reside in Englewood, N. J.

State engineering sections change top personnel

A series of resignations and retirements this week were changing the top commands of at least five state engineering departments.

In two states—Virginia and Colorado—new chief engineers took over; in others, top engineering posts were filled by new men.

Virginia's Department of Highways had its first new chief engineer since the post was created, following the retirement July 1 of Claree S. Mullen, who had held the office since 1924. The new chief engineer is Burton Marye, Jr., formerly one of the department's two assistant chief engineers. Mullen's retirement ends a

(*Continued on page 60*)

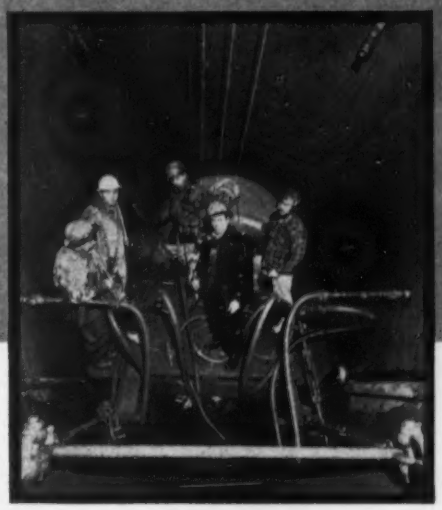
Prepakt Encases ¾-Mile Penstock at Kemano

Some 3,900 feet of steel penstock lining have been encased with Prepakt Concrete at Kemano, B. C. There, the Aluminum Co. of Canada, Ltd., has built the world's largest underground hydro power plant.

Prepakt preplaced coarse aggregate in annular space between steel penstock and excavated rock outline, then consolidated this by pumping Intrusion Mortar. The result—an integral mass of steel, concrete and natural rock to withstand up to 2,600 ft. head of water. Prepakt Concrete, with no setting shrinkage, assures *complete*, monolithic encasement with no after grouting needed.

At Kemano, Prepakt placed 19,000 cu. yds. in two 48-degree tunnels, 8,000 cu. yds. in horizontal runs.

General Contractor: Morrison-Knudsen Co. of Canada, Ltd.
Engineers: British Columbia International Engineering Co., Ltd.



Crew inside 11-foot diameter Kemano penstock pumps Intrusion Mortar through steel lining to consolidate aggregate preplaced by gravity.

• • •

Lower 2,000-foot angle section was encased in one continuous lift—21 working days! Simultaneous aggregate placement and pumping of mortar was used in around-the-clock work to encase tunnel at average rate of 24 cu. yds. per hour. Upper sloping section was encased in two lifts of 400 and 800 feet.

For further information on other Prepakt applications, send a request on your letterhead to: The Prepakt Concrete Co., Room 779-Q, Union Commerce Building, Cleveland.

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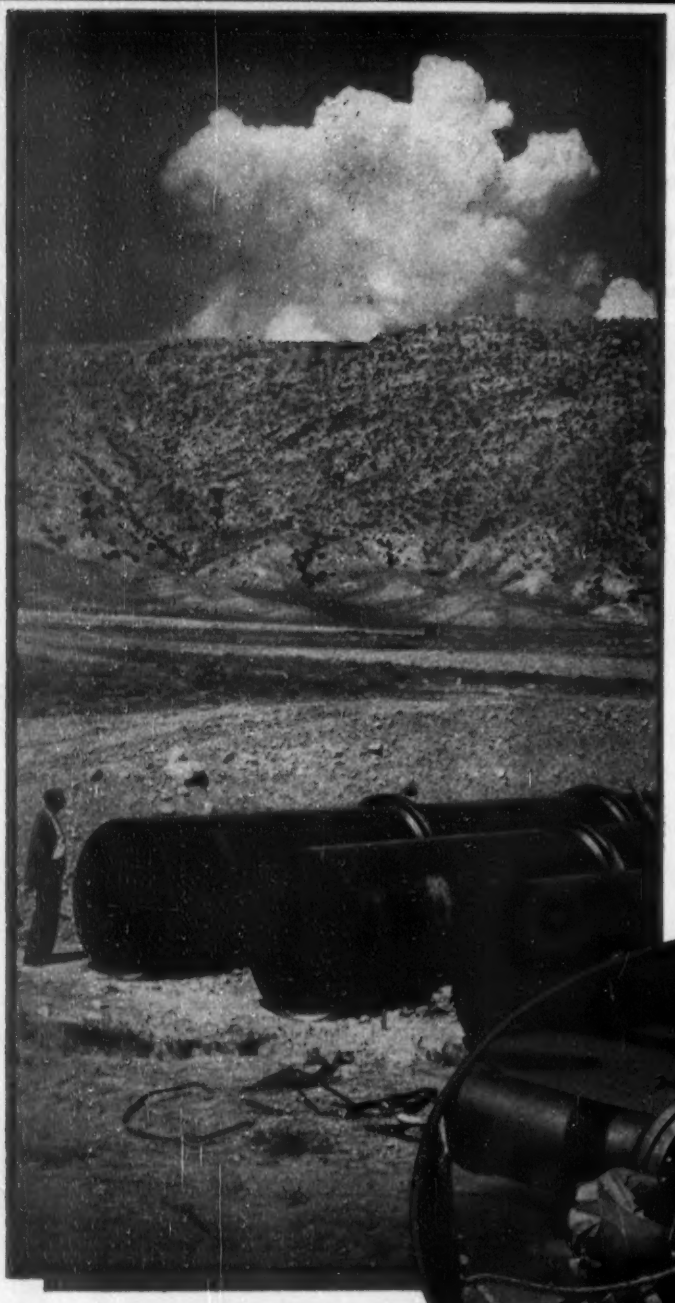
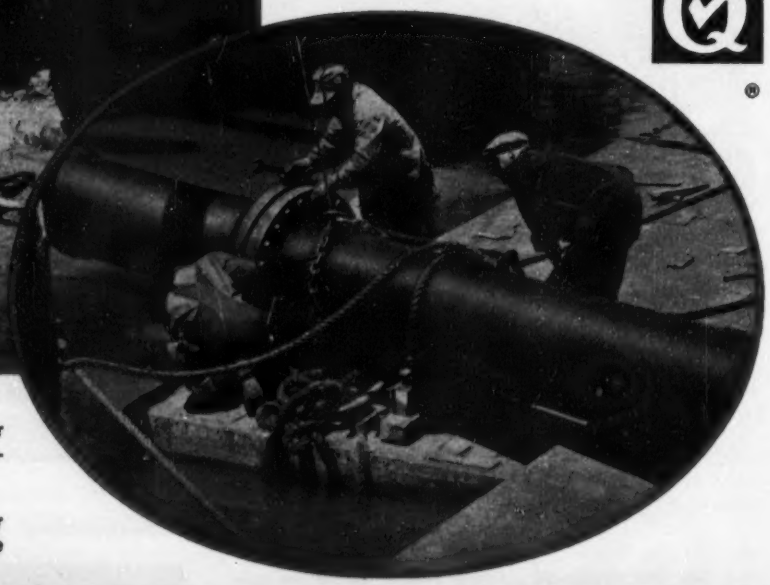


Versatile-

You know, of course, that cast iron pipe is widely used for water and gas mains, pressure sewers and outfalls, and almost exclusively in water filtration and sewage treatment plants. It is not so well known that this versatile pipe is also rendering yeoman service to Industry in keeping down maintenance cost in many applications. Such industries, for example, as chemical, paper, rayon and other process industries; coal mines and oil refineries; railroads and steel plants. Where effective resistance to corrosion is mandatory for long life and economy, specify cast iron pipe. For information write: Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 122 So. Michigan Avenue, Chicago 3, Ill.

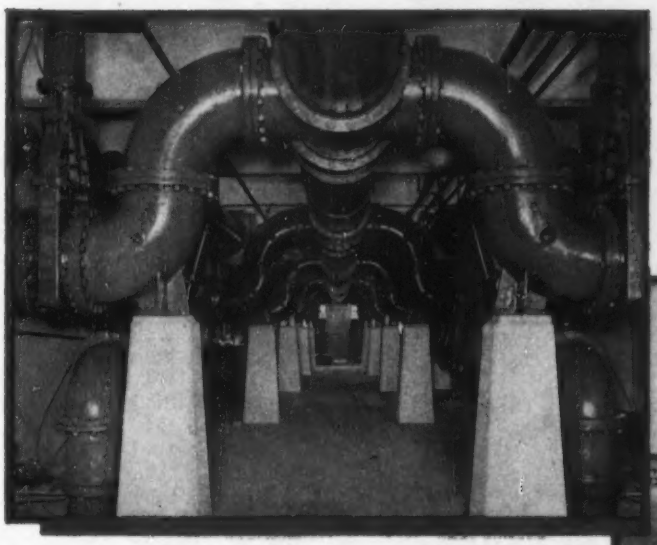


1800 feet of 36" to 60" cast iron pipe for culvert in connection with relocation of railroad tracks in Wyoming

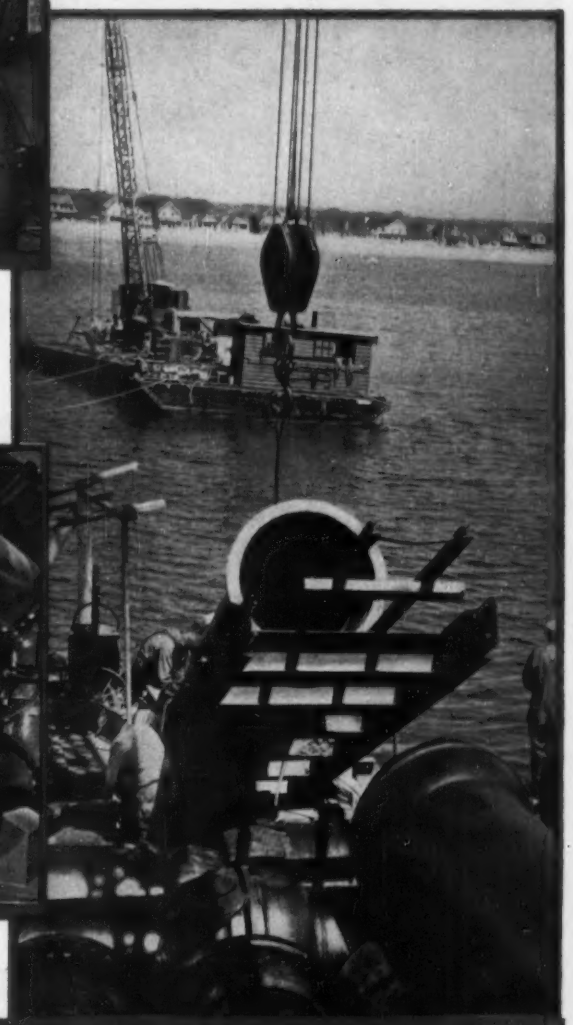
(At right) A river-crossing cast iron water line near Chester, Pa., showing flexible joint assembly.

CAST IRON PIPE

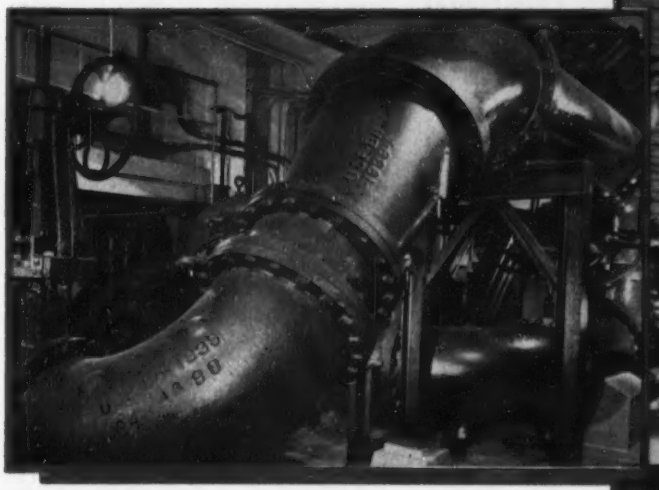
is the word for CAST IRON PIPE



Cast iron pipe and fittings installed in gallery of water filtration plant in Muskegon, Michigan.



Submarine installation of cast iron flexible joint pipe for outfall sewer into Long Island Sound at Fairfield, Conn.



Installation of cast iron pipe and fittings in steam plant of a gas and electric utility in California.

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career with the state's construction agencies that started in 1908, and which has included a major contribution to development of Virginia's present highway network, and many state and national honors.

Marye, a VMI graduate, joined the department in 1930, and has headed its traffic and planning sections for more than 18 years.

Also leaving the department is Archibald H. Bell, location and design engineer since 1930. He has been succeeded by David N. Huddle, his chief assistant.

In Colorado, C. C. Hezmalhalch, deputy engineer since 1923, has taken over as provisional state engineer, succeeding M. C. Hinderlider, who retired recently. Hezmalhalch has been an employee of the state engineer's office for nearly 40 years.

• **Other changes**—Rhode Island has appointed Joseph M. Vallone of Cranston as Director of Public Works, to replace Philip S. Mancini, who recently took over as chief of the state's new Division of Traffic Engineering and Highway Planning. Vallone, a civil engineering graduate of MIT, is vice-president and general manager of a sand and gravel company at Cranston.

In Texas, J. C. Dingwall, Engineer of Road Design for the Texas Highway Department, resigned to become engineer-manager for the Texas Turnpike Authority. He was succeeded by Talbot S. Huff, formerly assistant engineer of road design.

And in North Carolina, Berrien W. Davis, chief equipment engineer since 1951, has taken over as chief maintenance engineer for the highway department.

Men and Jobs briefs . . .

• **Careers**—**Victor L. Streeter,** formerly of Illinois Institute of Technology, becomes Professor of Hydraulic Engineering at Michigan U. in September . . . **Vernon G. MacKenzie** and **Albert G. Stevenson,** officer in charge and assistant for the Taft Sanitary Engineering Center at Cincinnati, are transferred to top staff work under the parent Public Health Service in Washington; they'll be succeeded at Taft by **Harry G. Hanson** and **J. E. Flanagan Jr.**

Stephen B. Bechtel, president of Bechtel Corp., has been elected a director of J. P. Morgan & Co., Inc. . . . **Hans H. Bleich,** Columbia University civil engineering professor, is now technical director of the school's Institute of Air Flight Structures . . .

Charles M. Herd is now chief construction engineer for the California state architect's office; **Charles Peterson** succeeds him as principal structural engineer.

• **Retirements**—**William H. Hall,** after 39 years in Duke University's engineering school, 14 years as dean . . . **F. J. Leerburger,** chief consulting engineer to the New York State Power Authority . . . **Irwin B. Hosig,** after 49 years with the Bureau of Reclamation, last in the Denver office . . . **George M. Garrett,** engineer-manager of the Fort Worth Expressway System, after 30 years of highway department service . . . **Henry G. Kuyl,** chief engineer for the Board of Engineers for Rivers and Harbors.

• **Honors**—**Cmdr. Harry C. Wills,** (CEC, USN), decorated by Republic of Korea for service as commanding officer of Seabee Maintenance Unit 1, between August 1, 1952 and July, 1953 . . . **Brig. Gen. R. G. Lovett,** East Ocean Division engineer at Richmond, Va., on behalf of himself and his division, accepted the National Safety Council's Award of Honor for distinguished service to safety in construction of military installations . . . **Charles A. McMahon,** now project superintendent for the big Anheuser-Busch brewery in the San Fernando Valley, Calif., received the degree of Civil Engineer from his alma mater—University of Colorado.

• **Associations**—**Thomas M. Linville,** Schenectady, N. Y., has taken office as president, New York State Society of Professional Engineers . . . **W. H. Leo,** of Sheffield Steel Corp., Kansas City, is new president of the Wire Reinforcement Institute, Inc. . . . **Maj. Gen. U. S. Grant III (USA, Ret.)** continues as president of the American Planning and Civic Association . . . **Adolph Weinzirl,** professor of public health, U. of Oregon, becomes chairman of the Portland, Ore., Air Pollution Committee . . . **Richard G. Kimbell,** building codes specialist, and **John G. Shope,** architectural engineer, added to technical staff of National Lumber Manufacturers' Association.

• **Business boosts**—**Donald E. Hawkins** to president of Bay City Shovels, Inc. . . . **W. E. Borbonus** to president, and **Kenneth E. Kirwan,** vice-president and chief engineer of Centriline Corp., New York . . . **E. G. Robbins,** to general manager of construction, Walter Kidde Constructors, Inc. . . . **William Blackie,** to executive vice-president of Caterpillar Tractor Co.

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McConnaughay HTD-500 at work on street patching job in Cheyenne, Wyoming.

K. E. McCONNAUGHAY
LAFAYETTE 2, INDIANA

OBITUARIES

J. W. Wynn, 64, partner in the engineering and contracting firm of Engstrom & Wynn, in Wheeling, W. Va., since 1922, died June 21. He was a graduate of Hamline University and managed important defense construction ranging from Camp Meade in World War I to Buckeye Ordnance Plant in World War II, in addition to a wide range of engineering and contracting projects in the middle Atlantic states. He was with Smith, Hauser & MacIsaac and Stone & Webster Engineering Corp. prior to establishing a partnership with R. V. Engstrom.

Breck Moran, 47, western reclamation leader, died June 21 at Cheyenne, Wyo. An honor graduate of the University of California and Cambridge University in England, he had been chief of water resources development for the Wyoming Natural Resource Board since 1952.

Roy T. Collins, president of Collins Construction Co. of Kansas City, Kan., died June 5. The firm—founded by Collins' father in 1880—has been responsible for building many of the industrial, commercial and hotel structures in the Kansas City area.

William E. Orr, Jr., 42, partner in Orr & Orr Construction Co. of Phoenix, Ariz., was killed June 15 in an automobile accident near Superior, Ariz. A graduate of the Purdue University school of engineering, he had been affiliated with his father in heavy construction work in Arizona.

Carleton B. Harveson, 69, chief engineer of maintenance of the Baltimore & Ohio Railroad, died June 29 in Cincinnati. He started his career in 1905 as a draftsman with the Philadelphia & Reading Railway. During World War I he served as a major in the Engineers. In 1922 he was appointed B & O division engineer at Philadelphia, later worked in the same capacity at Baltimore. He was promoted to engineer maintenance of way of the Eastern Lines in 1936 and to chief engineer in 1944.

Leland B. Raab, 66, consulting civil engineer of Stockton, Calif., died in that city recently. Raab opened his own office as a specialist in irrigation engineering and water rights matters upon graduation from the University of California in 1912.

Percy T. Siler, 71, Greensboro, N. C. masonry contractor, died June 29.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

▲ **MAINE**—BA 7/22—Maine Turnpike Auth., 17 Bishop St., Portland,
Portland to Augusta (Augusta Exten.) Sect. 2—Contr. 217 incl. constr. 13 bridges along route of Maine Turnpike Exten. between Mile 76 in city of Lewiston and Mile 87 in town of Webster along route of Lewiston Spur.
Contr. 217A incl. 3 of the above mentioned 13 bridges.
Contr. 217 incl. remaining 6 bridges incl. erection of steel superstructures. Plans deposit $35. Howard Needles, Tammen & Bergendoff, 55 Liberty St., New York 5, N. Y.; adv. ENR 7/15. CD 5/1/53, under Streets and Roads.

▲ **MAINE**—BA 7/22—Maine Turnpike Auth., 17 Bishop St., Portland,
Portland to Augusta (Augusta Exten.) Sect. 2 Contr. No. 222 under single contract, paving.
Contr. No. 222A will extend from Androscoggin River in city of Auburn near Mile 76 to point in town of Litchfield near Mile 91.
Contr. 222B exten. from point in town of Litchfield near Mile 91 to point in city of Augusta near Mile 106. Plans deposit $35. Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York 5, N. Y., consult. engr.; adv. ENR 7/15. CD 5/1/53.

† **Mass., Bedford**—COMMISSARY—BA On Of About 8/5—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, commissary, Hanscom Air Force Base, ENG.-19-016-55-3, $150,000-$250,000. Plans deposit $10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Platt Contg. Co., Inc.**, 99 First St., Cambridge, Mass. LB $598,000, est. $500,000-$1,000,000. constr. base warehouse, Hanscom Air Force Base, ENG-19-016-54-8, BEDFORD, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids June 28. CD 6/8.

▲† **John A. Volpe Constr. Co.**, 54 Eastern Ave., Malden, Mass. CA $2,228,945, est. $2,000,000-$2,250,000. hospital, boiler house, dental clinic, Westover Air Force Base, ENG-19-016-54-1, CHICOPEE, MASS. U.S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 6/29, under LB.

† **Theodore Loranger & Sons**, 404 Nash Rd., New Bedford, Mass. CA $735,500, est. $750,000-$1,000,000. readiness hangar, connecting utilities, aircraft maintenance hangar, Otis Air Force Base, ENG-19-016-54-115, FALMOUTH, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 6/29, under LB.

▲ **CONNECTICUT**—State Hy. Conn., State Office Bldg., Hartford,
Mariani Constr. Co., 222 Forbes Ave., New Haven, Conn., CA, $1,132,053, south abutment wings and pier footings for bridge carrying off ramp to Hamilton Ave. and F.A. Proj. UI 138 (8) and grading, drainage, pavement and bridges, F.A. Proj. UI-136, Waterbury. Bids June 7, awarded June 25. CD 6/11, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **E. J. Pinney Co., Inc.**, 220 Dwight St., West Springfield, Mass. CA, $1,218,900. high SCHOOL Bliss Rd., William St., Grassey Gutter Rd., LONGMEADOW, MASS. Town, School Dist., 811 Long Meadow St., Longmeadow, Mass. Bids June 24. CD 6/30, under LB.

White Constr. Co., 134 Newbury St., Boston, Mass. CA $926,823. P-104 Contr. 4, INDUSTRIAL BLDGS. and GARAGE, New State Prison, NORFOLK, MASS. State, Dpt. Correction, State House, Norfolk, Mass. Bids June 16, awarded June 25. CD 6/22.

Jefferson Constr. Co., 75 First St., Cambridge, Mass. CA, $573,000. HOUSING, 50 units, Flagg Farm, Green St., WOBURN, MASS. Woburn Housing Auth., 11 Winn St., Woburn, Mass. CD 5/25, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **N. Y., Grand Island**—ANTI-AIRCRAFT FACILITIES—BA 7/27—U. S. Eng., 80 Lafayette St., New York, Zone 13, anti-aircraft facilities. $500,000-$1,000,000. Plans deposit $100. CD 5/7.

BIDS ASKED—BUILDINGS

N. J., Erlton—PLANT, etc.—Bids Asked—Courier Post Newspaper, 229 Federal St., Camden, substructure for newspaper plant and office. $750,000. Louis T. Klauder & Assocs., Lincoln Liberty Bldg., Phila., Pa., engrs.

▲ **Pa., Phila.**—OFFICE, etc.—Bids Asked—At office Herman H. Kline, archt., 34 S. 17 St., office bldg. and garage, 2nd and Chestnut Sts., for Laight M. Cohan, 121 Chestnut St. $3,500,000. CD 2/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. 4th St., Harrisburg,
John H. Swanger, Lancaster, Pa., LB $1,388,574, constr. structures, grading, drainage and paving 2.54 mi. turnpike Sect. 35-1, part of northeastern exten. of Pennsylvania Turnpike, Lower Macungie Twp., Lehigh Co. Bids July 1. CD 6/15.

▲ **Palmer Rossi**, 7621 Forrest Ave., Phila., Pa., LB $314,053, Contr. 10, branch sewers, various locations;
Berlanti Constr. Co., 15 Oakland Ave., Harrison, N. Y. LB $678,900. Contr. 11, branch sewers, various locations;
Phil Savitz, 701 N. 63 St., Phila., Pa., LB $198,541, Contr. 12, branch sewers, various locations, PHILA., PA. Upper Moreland-Hatboro Joint Sewer Auth., 117 Park Ave., Willow Grove, Pa. Bids June 23. CD 5/14.

Curtin & Johnson, 1116 W. St. N.E., Wash., D. C., LB. $459,510. paving roadways, New York Ave. N.E. from Bladensburg Rd. to S. Dakota Ave., WASH., D. C. D. C. Govt. Dpt. Hys., 499 Pa. Ave. N.W., Wash., D. C. Bids June 28. CD 6/23.

Leo Butler Co., 9217 51 Ave., College Park, Md., LB, $451,183, Part "A", LB $535,521 for complete job; Contract No. 11, Price Run Interceptor, WILMINGTON, DEL. Street & Sewer Dpt., City Hall, Wilmington, Del. Bids June 29. CD 6/14.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **John W. Cowper Co., Inc.**, 774 Main St., Buffalo, N. Y. LB. $1,186,700, est. $1,200,000. Parking GARAGES 1 and 2, BUFFALO, N. Y. City, Dpt. P. Wks., City Hall, Buffalo, N. Y. Bids June 25. CD 6/14.

Belvedere Homes, c/o A. N Sirof, archt., 207 E. 37 St., New York 16, N. Y. Owner Builds. $400,000. 15 HOUSES, Belvedere Pl., near Weyman Ave., NEW ROCHELLE, N. Y.

Grayco Builders, 106-21 Continental Ave., Forest Hills, N. Y., CA $723,300, DORMITORY, NEW YORK, N. Y. New York University, Washington Square, New York 3, N. Y. Bids June 1. CD 5/11.

▲ **Turner Constr. Co.**, 420 Lexington Ave., New York 17, N. Y., CA Approx. $2,000,000. air-conditioning sys. for Chrysler BUILDING ALTERATIONS, NEW YORK, N. Y. Webb & Knapp, Inc., 383 Madison Ave., New York 17, N. Y. Rene Brugnoni & Rudolf C. P. Boehler, 383 Madison Ave., New York 17, N. Y., archts.

▲ **Samuel Bernstein & Sons**, c/o Herman York, archt., 90-04, 161 St., Jamaica, N. Y. Owner Builds. $15,000,000, 1,200 HOUSES on 300-acre tract, both sides of Rte. 25A, north of Jericho Turnpike, SMITHTOWN, N. Y.

Daley & Co., P.O. Box 1600, Trenton, N. J., LB, $547,000, general contract 3 DORMITORIES, State Colony, NEW LISBON, N. J. State Div. Purchase & Property, State House, Trenton, N. J. Bids June 24. CD 6/8.

▲ **Cadillac Apartments, Inc.**, Att. L. Mallis, 185-51 Radnor Rd., Jamaica, N. Y., Separate Contracts. $3,600,000. APARTMENT DEVELOPMENT, TRENTON, N. J. Schulman & Soloway, 100-15 Queens Blvd., Forest Hills, N. Y., archts.

▲ **Crumwald Builders Co.**, c/o Hansell Green, 1518 Walnut St., Phila., Pa., Separate Contracts. $2,500,000. RESIDENTIAL DEVELOPMENT, Fitzwatertown Rd., ABINGTON, PA. Erling Wenge, McClatchy Bldg., Upper Darby, Pa., archt.

▲ **Stoffel & Tillotson**, 2043 Eastburn Ave., Phila., Pa., LB $1,923,000, SENIOR HIGH SCHOOL, HAVERTOWN, PA. Haverford Twp. School Dist., Havertown, Pa. Baader, Young & Schultze, 1500 Walnut St., Phila., Pa., archts.

▲ **Hershman-Stass Co.**, 1876 Conlyn St., Phila., Pa. Separate Contracts. $1,380,000. RESIDENTIAL DEVELOPMENT, Welsh Rd., HORSHAM, PA.
Robert D. Wilson, Narberth, Pa., Separate Contracts. $450,000. RESIDENTIAL DEVELOPMENT, Baltimore Pike, MEDIA, PA.

L. F. Driscoll Co., 18 Chelton Ave., Phila., Pa., LB $740,000, general constr., remodel MALE BLDGS. E-2 and E-4 at Philadelphia (Byberry) State Hospital, PHILA., PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids June 30. CD 6/4.

▲ **Dpt. Procurement**, City Hall Annex, Phila., Pa. rejected bids May 28, Riverview HOME FOR THE INDIGENT exten. PHILA., PA. Will re-advertise. LB $2,015,500. CD 6/17, under LB.

Gowan-Williams Corp., 8501 Temple Rd., Phila., Pa. Separate Contracts. $650,000. RESIDENTIAL DEVELOPMENT, Mt. Airy Ave., PHILA., PA.

S. Yellin & Son, Inc., 222 N. 11 St., Phila., Pa., CA $600,000. NURSING SCHOOL, Northern Div., PHILA., PA. Albert Einstein, Medical Center, Widener Bldg., Phila., Pa. Abraham Levy, 1411 Walnut St., Phila., Pa., archt Bloom & Dorfman, 1411 Walnut St., Phila., Pa., engrs. CD 1/21.

Baton Constr. Co., 1717 Sansom St., Phila., Pa., CA. $593,080. 1 story WAREHOUSE, 2 story OFFICE, and parking area, brick and block constr., PHILA., PA. Westinghouse Electric Supply Co., 141 N. 11 St., Phila., Pa. Bids Apr. 16. CD 4/16.

J. A. Bader & Co., Inc., 923 Market St., Wilmington, Del., CA. $350,000, WAREHOUSE and OFFICE bldg., DOVER, DEL. Interand Building Corp., c/o J. Emil Anderson & Son, 1809 Balmoral Ave., Chicago, Ill.

Dover Builders, Inc., Odessa, Del., Separate Contracts. $800,000. RESIDENTIAL DEVELOPMENT, Kent Ave., DOVER, DEL.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

SOUTH

BIDS ASKED—BUILDINGS

▲ **Ga., Dublin**—SCHOOLS—BA 7/22—Laurens Co. Bd. Educ., Dublin, schools $1,000,000. Plans deposit $50. McDonald & Co., Walton Bldg., Atlanta, archts. CD 8/27/52.

Ga., Cedartown—SCHOOLS—BA 7/29—Polk Co. Bd. Educ., Cedartown, schools $750,000. CD 9/30/52.

La., New Orleans—SCHOOL—BA 8/3—Orleans Parish School Bd., 703 Carondelet St., 1 story, rein.-con. Robert R. Moten Elementary School, $536,000. Plans deposit $25, Claude E. Hooten, 509 St. Ann St., archt.

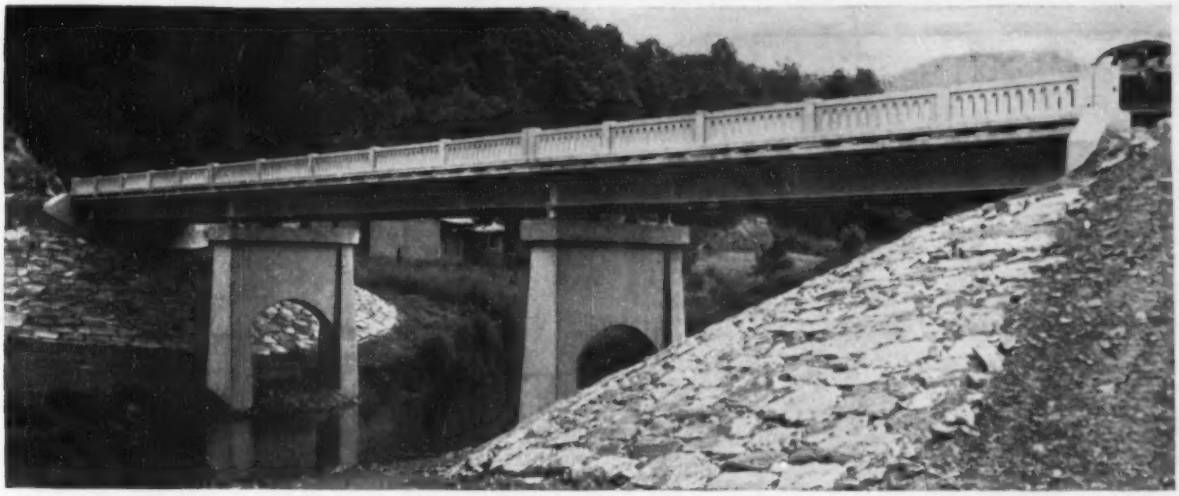
HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge,
Kansas City Bridge Co., 928 Broadway, Kansas City, Mo. LB $1,099,198. substructure;
Austin Bridge Co., 1000 Singleton Blvd., Dallas, Tex. LB $1,339,469. superstructure Red River Bridge, S.P. 420-01-01, Caddo and Bossier Parishes. Bids June 30. CD 5/19.

† **C. B. Spencer**, 2350 Rousseau St., New Orleans, La. CA $71,114. 1 story, 37x91 ft. motor service shop, 1 story, 16x21 ft. paint, oil and dope storage bldg., NOY 82640, Spec. 42666;
R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St., New Orleans, La. CA $711,000, 1 story, 232x325 ft. concrete masonry warehouse, NOY 82594, Spec. 42634, Joint Air Reserve Training Center, Alvin Callender Field,

(Continued on page 66)



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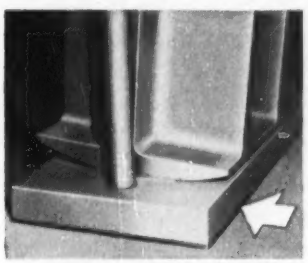
FABREEKA PADS on highway bridges not only distribute loadings evenly and compensate for irregularities of bearing surfaces, but also prevent chipping and flaking of concrete and grout, seal out moisture and dirt, reduce transmission of impact shock, and very substantially cut the labor cost of erection. Bridge building contractors find them more economical and convenient to install. Furnished cut to size with bolt holes as specified, Fabreeka Pads are simply dropped over the anchor bolts; require no painting, and are not affected by weather conditions. They are made of a scientifically designed and manufactured material, have exceptionally high damping qualities, and remain permanently resilient under all service conditions.



Arrow points to Fabreeka Masonry Plate Pad. Fabreeka Bridge Pads will withstand loads up to 11,000 lbs. per sq. inch.

FABREEKA Pads for Highway Bridges

Masonry Plate Pads

Expansion Joint Pads

Railing Base Pads

Light Base Pads

Water Main Support Pads

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GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

(Continued from page 64)

Belle Chasse, NEW ORLEANS, LA. Officer in Charge of Constr., Eighth Naval Dist., Bldg. 16, Naval Station, New Orleans, La. Bids June 24. CD 6/4.

BUILDINGS

LOW BIDS AND CONTRACTS

M. B. Kahn Constr. Co., P.O. Box 595, Columbia, S. C., CA, $808,201. STUDENT UNION BLDG., COLUMBIA, S. C. University of South Carolina, Columbia, S. C. Bids June 17. CD 6/1.

▲ Byck-Worrell Constr. Co., 318 E. Bay St., Savannah, Ga. CA, $4,393,000 HOUSING project GA-6-7, ATLANTA, GA. Atlanta Housing Auth., 419 Trust Company of Georgia Bldg., Atlanta 3, Ga. Bids May 20. CD 6/2, under LB.

A. C. Samford, Inc., Albany, Ga., LB, $506,355, SCHOOLS, BLAKELY, GA. Early Co. Bd. Educ., Blakely, Ga.

▲ Ivey Brothers, 3224 Peachtree Rd. N. E., Atlanta, Ga., LB, $1,015,015, HOSPITAL, DALTON, GA. City and Whitfield Co., Dalton, Ga. Bids June 23. CD 6/10, under LB.

▲ Brendale Heights, 1537 N. W. 15 St., Fort Lauderdale, Fla., Force Account, $1,000,000, 111 RESIDENCES, FORT LAUDERDALE, FLA. Carlos G. Schoeppl, 2701 Biscayne Blvd., Miami, Fla., archt.

Gossett & Parker, Florida Theater Bldg., Jacksonville, Fla., CA, $543,808, 4 SCHOOLS, STARKE, FLA. Bradford Co. Bd. P. Instruction, Starke, Fla.

▲ D. R. Selley Co., 409 Fourth Ave. S., Nashville, Tenn. CA, $1,200,000. HOSPITAL, DYERSBURG, TENN. Dyer Co., Dyersburg, Tenn. CD 6/16, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

O., Cleveland—BA 7/29—Bd. Comrs. Cuyahoga Co., 135 Court House, Zone 14, grade, drain, pave Alexander Rd. in Walton Hills and Oakwood from Northfield Rd. to Broadway; grade separation at Pennsylvania R. R. connection with Pettibone Rd. $880,500. Plans deposit $25, Albert S. Porter, Standard Bldg., Zone 14, co. engr. CD 4/5.

BIDS ASKED—BUILDINGS

▲ Ind., East Chicago—SCHOOL—BA 7/26—School City of East Chicago, 4819 Magoun St. Washington High School, gymnasium, auditorium, $1,200,000. Michael S. Bittner, 721 W. Chicago Ave., archt. CD 3/20/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Herlihy-Mid Continent Co., 135 S. La Salle St., Chicago, Ill., CA, $1,211,259. 2 level Wacker Dr. from Monroe to Adams Sts., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Mar. 18, awarded June 11. CD 4/25, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Wood Constr. Co., Bellefontaine, O., LB, $1,271,110, general constr. Belmont Area HIGH SCHOOL, DAYTON, O. Bd. Educ., 232 N. Main St., Dayton, O. Bids June 22. CD 5/26.

▲ Gillmore—Olson Co., 1837 E. 55 St., Cleveland, O. CA Approx. $4,000,000. general contract PLANT addn., EUCLID, O. Chase Brass & Copper Co., Inc., 1949 Rodney St., Waterbury, Conn. CD 4/29.

▲ Austin Co., 16112 Euclid St., Cleveland, O., CA Approx. $1,000,000, small motors PLANT, 1 story FACTORY structure and OFFICE, UPPER SANDUSKY, O. Westinghouse Electric Corp., 1370 Ontario St., Cleveland, O.

▲ George A. Fuller Co., 597 Madison Ave., New York 22, N. Y., CA, $2,000,000, METAL RESEARCH and DEVELOPMENT CENTER, on 7½ acre site, CHICAGO, ILL. Continental Can Co., 100 E. 42 St., New York 17, N. Y. CD 6/14.

Skeleton Builders, 5447 S. Oak Park Ave., Chicago, Ill. Own Forces, $600,000, 40 HOMES, Merrimac and 55 Sts., CHICAGO, ILL. Floyd Evans, 8317 S. Prairie St., Chicago, Ill., archt.

S. N. Nielsen Co., 3059 Augusta Blvd., Chicago, Ill. CA, $549,000, MOTOR ROOM addn., railroad trackage, McCOOK, ILL. Reynolds Metal Co., 47 St. and 1 Ave., McCook, Ill. Bids June 11, awarded June 24. CD 6/10.

▲ Jezo Constr. Co., West Allis, Wis., LB, $1,895,000 Longfellow Junior High SCHOOL, WAUWATOSA, WIS. Bd. Educ., 1732 Wauwatosa Ave., Milwaukee 13, Wis. Bids July 1. CD 5/24.

O. W. Burke Co., 1032 Fisher Bldg., Detroit, Mich. CA, $895,980. general contract, 2 rein-con., masonry INDUSTRIAL THERAPY BLDGS., NORTHVILLE, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. Bids June 14. CD 6/9.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

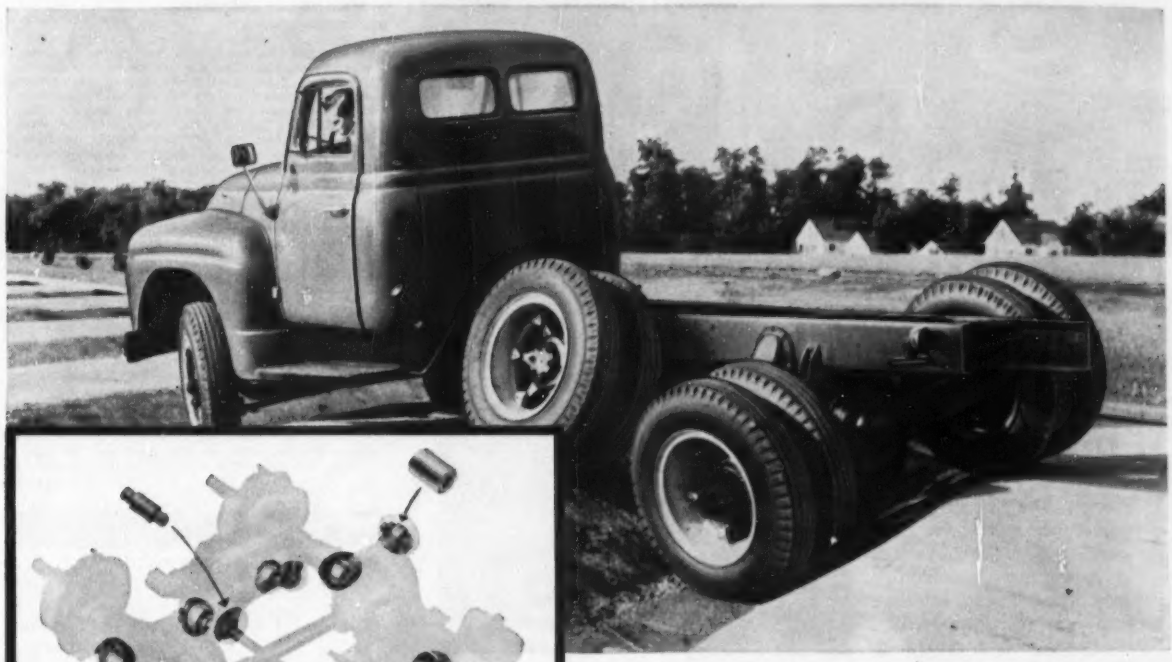
† Tex., El Paso—POL ADDN.—BA About 7/29—U. S. Eng., P. O. Box 1538, Albuquerque, N. M., POL addn. to filter meter pits, incl. installing 6 in. inverted loops and replacing filters with new 600 GPM filters Biggs Air Force Base, Serial No. ENG-29-005-55-3. CD 10/23/51.

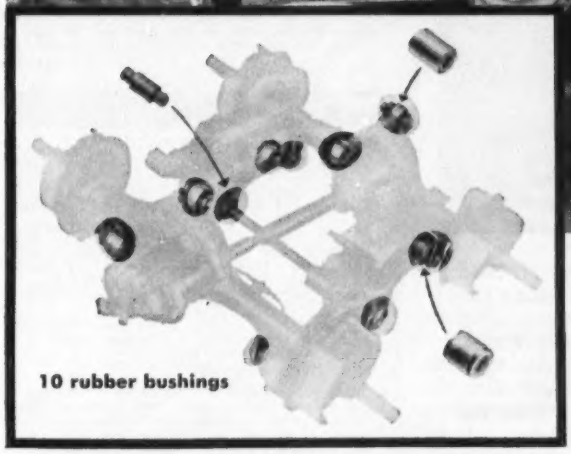
BIDS ASKED—BUILDINGS

Tex., Austin—MEDICAL CENTER—Bids Asked—Frank F. Knight, 602 West Ave., South End "Medical

(Continued on page 68)

CHAMPION
of the 6-wheel field





Most advanced bogie in the 6-wheel field—bar none! That's the word for the new INTERNATIONAL bogie, here shown on the famous INTERNATIONAL "twist course." It features (inset) exclusive new straddle-mounted torque arm design. New lubrication-eliminating, shock-reducing rubber bushings. New, easier-serviced, protected air brake cylinder unit. *Only INTERNATIONAL has it. Compare!*

INTERNATIONAL Trucks have been sales leader in the 6-wheel field for 19 straight years . . . because of such extra-efficiency features as the power divider and third differential . . . because of low operating and maintenance costs in both bogie and truck provided by traditional INTERNATIONAL quality and extra-tough, truck-engineered components.

Today, INTERNATIONAL 6-wheel trucks are still champions, with a *new* bogie design that provides unmatched ruggedness—further cuts costs—further lengthens axle and truck life.

INTERNATIONAL and only INTERNATIONAL gives you *all* these advanced bogie features, plus a range of models for every 6-wheel need. See your nearby Dealer or Branch for full facts and the complete INTERNATIONAL money-saving story. Time payments arranged.

INTERNATIONAL HARVESTER COMPANY · CHICAGO

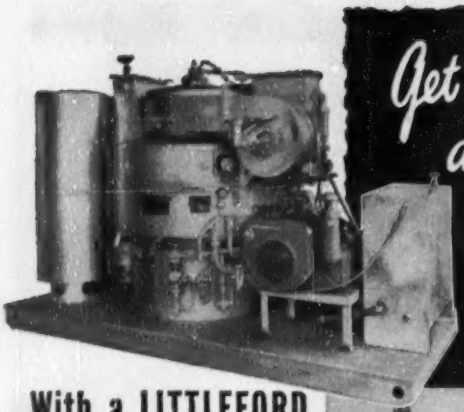
24 SIX-WHEEL MODELS
22,000 to 90,000 Pounds GVW

All heavy-duty engineered, with wheelbases, transmission and axle ratios for every need. Engines from 130 to 356 h.p. Choice of gasoline or LPG power. Diesel engines available in models with GVW ratings of 30,000 lbs. and over. A part of America's most complete truck line—175 basic models, from ½-ton pickups to 90,000 lbs. GVW off-highway models.

International Harvester Builds **McCORMICK®** Farm Equipment and **FARMALL®** Tractors . . . Motor Trucks . . . Industrial Power . . . Refrigerators and Freezers

Better roads mean a better America

INTERNATIONAL® TRUCKS
"Standard of the Highway"



Get Steam from a Cold Start IN 2 MINUTES TIME

With a LITTLEFORD "Kwik-Steam" Vapor Generator for PILE DRIVING

Here's the labor-saving unit contractors have been looking for. Gives steam in 2 minutes time from a cold start, burns low-cost fuel oil, needs no skilled workman to operate it. This amazing unit cycles off and on to produce steam only when needed. There's no hard fuels to buy, no firing boilers for hours before operation. The "Kwik-Steam" Generator is the most modern steam producing unit ever designed. For Pile Driving, Heating Asphalt Plants, Curing Concrete Blocks, Heating Aggregate in Ready Mix Concrete Plants are a few uses for this versatile "Kwik-Steam" Generator. Made in sizes ranging from 20 to 165 B.H.P. Write for Catalog 22 for further details.

LITTLEFORD

LITTLEFORD BROS., INC., 415 E. PEARL ST., CINCINNATI 2, OHIO

SIMPLEX Center Hole Hydraulic PULLERS
Perfected for
PRESTRESSING CONCRETE

Self contained and Remote controlled pumps and rams in capacities 10-100 tons

SIMPLEX JACKS

TEMPLETON, KENLY & CO. Broadview, Illinois
2853 Gardner Road

PILES

CAST-IN-PLACE
SECTIONAL PIPE
COMPOSITE
STEEL H-PILE
TIMBER

DRIVEN FOR EVERY CONDITION
FOR EVERY STRUCTURE

MacArthur Concrete Pile Corp.
18 East 48th Street, New York 17, N. Y.
New Orleans, Cincinnati, Pittsburgh
PILE DRIVING CONTRACTORS SINCE 1910

(Continued from page 66)

Community Center", $525,000. Page, Southerland & Page, 602 West Ave., archts. CD 4/5.

SOON LETS CONTRACTS—BUILDINGS

▲ Tex., Dallas — COLISEUM-GYMNASIUM — Southern Methodist University, Dallas, soon lets contract coliseum-gymnasium, 10,000 seating capacity, 232x421 ft., swimming pool, limestone and granite exterior, etc. $2,250,000. Smith & Mills, Mercantile Sec. Bldg and Mark Lemmon, Thomas Bldg., archts. CD 5/17/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MISSOURI—State Hy. Dpt., Jefferson City,
Koss Constr. Co., 205 Farm Bureau Bldg., Des Moines, Ia. CA, $86,694. two 41 ft., two 53 ft. continuous I beam spans Sta. 484 plus 04, Montgomery Co.;
Massman Constr. Co., 1221 Baltimore Ave., Kansas City, Mo. CA, $65,458. two 93 ft., one 50 ft., rein.-con. deck girder spans, Sta. 371 plus 66, St. Louis Co.; CA, $168,482. four 45 ft., three 50 ft rein.-con. deck girder spans Sta. 388 plus 05, St. Louis Co. Grand total $320,634. Bids May 20, awarded June 12. CD 5/26, under LB.

▲ TEXAS—State Hy. Comn., Austin,
Texas Bitulithic Co., P. O. Box 10365, Dallas, Tex., CA, $1,192,104, grading, structures, storm sewers, c. conc. 1.266 mi. Hy. US 75, Proj. UI 832 (8), Dallas Co. Bids June 15, awarded June 29. CD 6/21, under LB.

▲ TEXAS—State Hy. Comn., Austin,
Gulf Bitulithic Co., P. O. Box 2572, Houston, Tex., CA, $1,118,235, c. conc. 1.493 mi. Hy. US 59, Proj. F 514 (15), Harris Co.;
Worth Constr. Co., P. O. Box 531, Fort Worth, Tex., CA, $1,283,175, roadbed tr., c. conc. pavement and three level interchange 1.725 mi. Hy. US 84 and 81, Proj. U 605 (16), etc., McLennan Co. Bids June 16, awarded June 29. CD 6/23.

TEXAS—State Hy. Comn., Austin,
Cancelled bids to have been opened July 14, grading, structures, base, surf. 9.277 mi. Hy. FM 2019 and 1882. Proj. S 1900 (1), etc., Ector Co. CD 6/21; flexible base, one course surf. tr. and b. conc. 21.578 mi. US 62 and 82, Proj. F 443 (23) and (24), Lubbock and Crosby Counties. CD 6/28.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† Calif., Muroc—WAREHOUSE—BA 7/23—U. S. Eng., 751 S. Figueroa St., Los Angeles, warehouse, ENG-04-353-54-120, $800,000. Lunden, Hayward, & O'Connor, 548 S. Spring St., Los Angeles, archts. CD 12/10/52.

Calif., Los Angeles—BA 7/30—Los Angeles Co., Hall of Records, curbs, gutters, walks in Gotham Streets, Bell Gardens. $478,563. Wm. J. Fox, c/o owner, engr. CD 3/15/51.

▲ Calif., Los Angeles—BA 8/6—Metropolitan Water District of Southern California, 306 W. 3 St., Installing Pumping Units 4 and 5, at five pump plants, 200 C.F.S each, San Bernardino and Riverside, $1,000,000. R. B. Diemer, c/o owner, engr.

BIDS ASKED—BUILDINGS

▲ Wash., Port Orchard—SCHOOL—BA 7/22—South Kitsap School District 302, Port Orchard, 3 steel frame buildings on 56,000 sq. ft. of Junior High School. $1,000,000. Mallis & De Hart, Lyon Bldg., Seattle, Zone 4, archts. CD 8/21/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† Dinwiddie Constr. Co., 210 Crocker Bldg., San Francisco, Calif., CA $1,091,311, hangar, warehouse, etc., Hubbard Air Force Base, ENG-04-203-54-415, RENO, NEV. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids June 15, awarded June 22. CD 6/22, under LB.

N. W. White, Pier 65, Seattle, Wash., CA, $619,738, expansion Hanford St. Grain Elevator, SEATTLE, WASH., Port of Seattle, Bell St. Terminal, Seattle 1, Wash. Bids June 28. CD 6/23.

† OREGON—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland,
Funderburk Constr. Co., Sutherlin, Ore., CA, $504,922, grade 4.364 mi., North Umpqua Hy., Douglas Co. Bids June 28. CD 6/18.

† Westinghouse Electric Corp., Union Bank Bldg., Pittsburgh, Pa. CA. $835,938, two powerhouse fish-channel water-supply turbines, The Dalles Dam, CIVENG-35-026-54-65, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Feb. 10, awarded June 22. CD 2/16, under LB.

† H. Earl Parker, 12 and F Sts., Marysville, Calif. CA, $657,987, bank protection, etc., Sacramento River, Colusa, Yolo and Sutter Counties, CIVENG-04-167-54-69, CALIFORNIA. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids June 15. CD 6/23, under LB.

▲ CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles,
Webb & White, 7220½ Melrose Ave., Los Angeles, Calif., LB, $1,134,789, grading, surf., 3 bridges 0.5 mi. 4 St. between Hill St. and Harbor Freeway, Los Angeles Co. Bids June 24.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento,
Brown-Ely Co., Box 474, Cortex Madera and W. H. Darrough & Sons, Box 392, Yuba City, Calif., CA, $524,-

336 grading, surf. 5.3 mi. between Oswald Rd. and Rt. 15 near Yuba City, Sutter Co. Bids June 9, awarded June 24. CD 6/17, under LB.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles.

M. S. Meacham & Sons, 11125 Garfield Ave., South Gate, Calif., CA, $846,263, grading, surf. 4.7 mi. Pacific Coast Hy. and 174 St., Los Angeles Co. Bids June 10, awarded June 24. CD 6/16, under LB.

▲ CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles.

Ukropina-Polich-Krai and John, R. Ukropina, Box 105, San Gabriel, Calif., CA, $2,447,821 grading, paving, 8 bridges 1 mi. Los Angeles River Freeway between Sheila St. and Verona St., Los Angeles Co. Bids June 3. CD 6/10, under LB.

† Chas. L. Harney, Inc., 575 Berry St., San Francisco, Calif., CA, $521,877, maintenance and operational apron, ENG-04-203-54-414, HAMILTON AIR FORCE BASE, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids June 8, awarded June 23. CD 6/22, under LB.

† J. Haddock Engineers Ltd., Box 390, Montebello, Calif., LB, $580,000, permanent instrumentation East and West Power Arrays, G-range, N.O.T.S., China Lake, NOY 83005, Spec. 42877, INYOKERN, CALIF. Dpt. Navy, San Diego, Calif. Bids June 25. CD 2/1/52, under Public Buildings.

† Clyde W. Wood & Johnson Western Constructors, Box 620, North Hollywood, Calif., LB $712,900, concrete overlay on floor of Dry Dock No. 1, Long Beach Naval Shipyard, NOY 83006, Spec. 42878, LONG BEACH, CALIF. Dpt. Navy, San Diego, Calif. Bids June 25.

M. Miller Co., 873 N. Bunker Hill St., Los Angeles, Calif., CA, $969,190, Est. $500,000, Hollywood Outlet Line, Unit II, LOS ANGELES, CALIF. Los Angeles Dpt. Water & Power, 207 S. Broadway, Los Angeles, Calif. Bids May 27, awarded June 22. CD 6/2, under LB.

† Erickson Constr. Co. & Campbell Constr. Co., 800 R St., Sacramento, Calif., CA, $584,901 roads, sanitary facilities, railroads, misc. work, McClellan Air Force Base, Spec. 1859, SACRAMENTO, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids June 10, awarded June 24. CD 6/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Stearns-Roger Eng. Co., 1720 California St., Denver, Colo., CA Approx. $5,500,000. 55 kw. steam POWER PLANT, LAS VEGAS, NEV. Southern Nevada Power Co., 109 S. 2 St., Las Vegas, Nev.

Ehrhart & Arthur, 417 S. Hill St., Los Angeles, Calif., CA, $800,000, FERTILIZER STORAGE FACILITY for use by Shell Chemical Corp., PASCO, WASH. Tidewater Terminals, Inc., Pasco, Wash.

▲ Hebb & Narodick, 232 4 Ave. N., Seattle, Wash., Day Labor, $1,000,000, 113 HOUSES, near Seattle-Tacoma Highway and S. 188 St., SEATTLE, WASH. R. Durham, 1100 Denny Way, Seattle, Wash., archt.

▲ Howard S. Wright & Co., 414 Pontius St., Seattle, Wash., CA, $1,000,000, corrugated-box PLANT, SEATTLE, WASH. Longview Fiber Co., Longview, Wash.

▲ Howard S. Wright & Co., 414 Pontius St., Seattle, Wash., CA. Est. $5,000,000. BUILDING for lease to Post Office Dpt. for Terminal Annex P.O., SEATTLE, WASH. Terminal Development Corp., c/o J. N. Ritter, Downs-Ritter & Assocs., White-Henry Stuart Bldg., Seattle, Wash. John Graham & Co., Dexter Horton Bldg., Seattle 4, Wash., archts.

H. Halvorson, Inc., Ziegler Bldg., Spokane, Wash., CA, $693,046, first section 1 story, 64,000 sq. ft., rein.-con. Northtown SHOPPING CENTER, SPOKANE, WASH. Western Realty & Holding Co., W. 1017 Riverside Ave., Spokane, Wash. Bids Apr. 21. CD 5/3, under LB.

C. E. De Witt, 11379 San Fernando Rd., San Fernando, Calif., LB, $619,000, 45,000 sq. ft. Elementary SCHOOL, BARSTOW, CALIF. Barstow School District, Barstow, Calif. Bids June 23.

▲ Morley Bldg. Co., 9304 Santa Monica Blvd., Beverly Hills, Calif., Owner Builds. $1,409,800. 162 frame, stucco DWELLINGS, Lefloss and Dumont Aves., etc., BELLFLOWER, CALIF. Hudson & Brockow, 2824 W. Olympic Blvd., Los Angeles, Calif., archts.

Tom E. Norcross, 6053 Atlantic Ave., Long Beach, Calif. LB, $809,340, superstructure of main bldg. of Valley Steam Plant, Units 3 and 4 (Sun Valley District), LOS ANGELES, CALIF. Los Angeles Dpt. Water & Power, 207 S. Broadway, Los Angeles, Calif. Bids June 24. CD 6/9.

Hoofer Constr. Co., Box 425, Fontana, Calif., LB, $520,000, Elementary SCHOOLS No. 11 and 12, ONTARIO, CALIF. Ontario Elementary School Dist., 429 W. 4 St., Ontario, Calif. Bids June 22. CD 6/9.

▲ Bollenbacher & Kelton, Inc., 945 N. La Cienega St., Los Angeles, Calif., Owner Builds, $1,064,700, 117 frame, stucco DWELLINGS, Graycliff, Peggy and Lonny Aves., PUENTE, CALIF.

CANADA

BIDS ASKED—BUILDINGS

▲ P.E.I., Charlottetown—FEDERAL PUBLIC—BA 8/25—Dpt. P. Wks., Hunter bldg., Ottawa, Ont., 6 to 7 story, federal govt. public bldg., for various govt. depts. and post office, Queen St., $3,500,000. Plans deposit $500. E. A Gardner, c/o owner, ch. archt. E. G. Langley, Public Bldg., Halifax, N. S., distr. archt. CD 6/21.

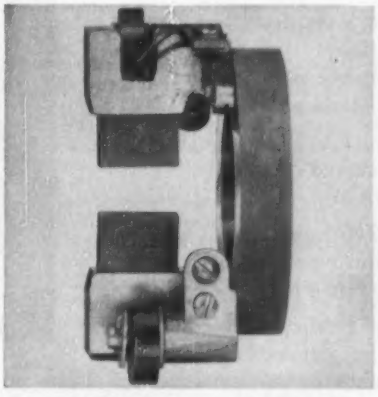
(Continued on page 71)

(*Advertisement*)

BETTER COMMUTATION results from increased brush tension on VIBER'S new brush holder assembly. The strong adjustable flat spiral spring keeps brush tension at the 36 ounce factory setting, or more. You can easily adjust brush tension with only a screwdriver, after removing cover.

80% more brush tension extends Viber brush and commutator life

You will get better brush and commutator life and performance from the 36 ounce adjustable brush tension and ⅛ inch ground clearance of VIBER'S new brush holder assembly. A larger (1⅜ inch o.d.) shielded bearing will give you increased bearing life and further reduce maintenance and down time. In addition, you can extend the savings from this improved construction to your present VIBER vibrators. The new assembly fits VIBER motors manufactured back to 1942. With the convenient conversion kit you can make the change easily right in your own shop.



WIDE BRUSH CLEARANCE from frame side of ⅛ inch phenolic ring minimizes carbon dust accumulation and any tendency to arc to ground.

• **Brush holder** — Machined bronze casting, with strong, adjustable flat spiral spring. It accurately positions the brush, lets it move freely, and maintains full tension. This reduces arcing and burning, increasing brush and commutator life.

• **Insulating ring**—strong laminated phenolic ring firmly supports the two brush holders. Its ⅛ inch thickness provides extra clearance to prevent arcing to ground.

• **Bearing** — Twenty percent larger, with twice the load rating. This bearing and the beefed up aluminum casting supporting the brush holder assembly have ample mechanical strength to resist misalignment from rough handling in the field.

• **Conversion kit** — For better commutation and lower maintenance on your present VIBER Vibrators. Excepting only the laboratory Model 11, you can use the new assembly on all VIBER motors made since 1942 — Models E, SE, 26, 27, 28, and 31.

For further information on the new brush holder or any of the complete VIBER line of external and rubber tipped internal vibrators, contact your authorized distributor or VIBER COMPANY, 726 South Flower St., Burbank, Calif.

VIBER

CONCRETE VIBRATORS SINCE 1931

"LET'S *SEE*...
Let's drive on concrete tonight!"

"Let's see—we could take a shorter route but the gas station man says this one is concrete all the way. We'll make better time because we can see where we're going on concrete. Yes, let's *see!* Let's take the concrete road!"

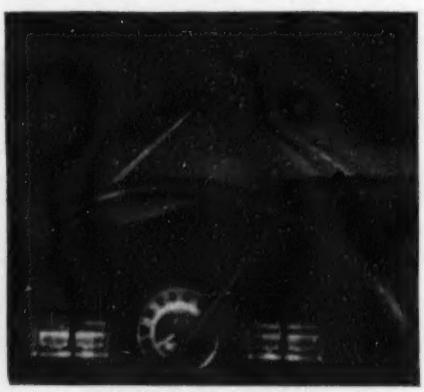
Millions of motorists make this wise decision. There's good reason for it. In one test, the Illuminating Engineering Society found that the light reflectance on concrete pavement is 20%, on dark pavement as little as 5%!

And in the State of Washington, a 1952 survey showed 63% more nighttime accidents occurred on dark pavement than on concrete as compared with 50% more in daylight!

Studies like these prove conclusively how important good visibility is to safe driving at night, when most accidents occur. *Simple logic says you can't be safe if you can't see!*

Motorists look to engineers and public officials for safe roads. They know that at night safety depends upon a road surface with high light reflectance. Only concrete has it. For safety's sake pave all main highways with concrete.

Concrete's high light reflectance illuminates the road farther ahead. Drivers can see curves, pedestrians and obstacles in the road in time to slow down or to stop.



Taken with the same car lights, this photo shows how dark pavement absorbs light and reduces visibility. For nighttime driving safety, motorists must be able to see.

PORTLAND CEMENT ASSOCIATION 33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

(Continued from page 69)

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

McNamara Constr. Co. Ltd., 42 Industrial St., Toronto, Ont., CA, $593,919, 1 7/8 mi. 48- to 72- in. storm relief sewers for suburban area, TORONTO, ONT. York Two., 2700 Eglinton Ave. W., Toronto, Ont. Gore & Storrie, 1130 Bay St., Toronto, Ont., engrs. Awarded June 28. CD 4/21.

BUILDINGS

LOW BIDS AND CONTRACTS

Allan & Viner Constr. Ltd., 602 W. Hastings St., Vancouver, B. C. CA, $850,491, JAIL, Main St., VANCOUVER, B. C. Municipality, City Hall, Vancouver, B. C. CD 1/27.

T. A. Andre & Sons Ltd., 580 Brock St., Kingston, Ont. CA, $700,000, 5 story, U-shaped, 86x161 ft., rein.-con., steel, stone MEN'S RESIDENCE, KINGSTON, ONT. Queen's University, Kingston, Ont. Bids June 14. CD 5/21.

Louis Donolo (Ontario) Ltd., 2790 Dufferin St., Toronto, Ont., CA, $500,000, 7 story, bsmnt., sub-sub bsmnt., 29,000 sq. ft. OFFICE, St. Claire Ave. West and Deer Park Cres., TORONTO, ONT. Anglo Canadian Fire & General Insurance Co., 25 Richmond St. W., Toronto, Ont. Bids June 10, awarded June 28. CD 5/26.

▲ Louis Donolo (Ontario) Ltd., 2790 Dufferin St., Toronto, Ont., CA, $1,000,000, 8 story, 80-suites, 52,000 sq. ft., rein.-con., brick APARTMENT with parking area beneath bldg. and bsmnt. beneath parking area, St. Clair Ave. W. and Oriole Rd., TORONTO, ONT. Robert E. Cook Ltd., c/o J. A. Murray, 75 St. Clair Ave. E., Toronto, Ont., archt. Bids June 10, awarded June 28. CD 5/26.

Peter Ucci & Sons, 1935 Avenue Road, Toronto, Ont., Owner Builds, $712,000, 9 story, 90-suite, concrete, steel, brick APARTMENT HOUSE, west side of St. George St., north of Lowther Ave., TORONTO, ONT. Venchiarutti & Venchiarutti, 2941 Bathurst St., Toronto, Ont., archts. CD 7/2.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

Alaska, Petersburg—TURBINE, GENERATOR, etc.—BA 7/30—City, City Hall, 3,100 h.p. impulse type turbine, 2,000 kw. water wheel generator and switchgear for semi-automatic and remote-control power plant (part of $750,000 proj.). Plans deposit $5. R. W. Beck & Assocs., 1505 Tower Bldg., Seattle 1, Wash., engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† Chris Berg, Inc., 2730 Westlake Ave. N., Seattle, Wash. CA $591,252. 35-bed approx. 20,800 sq. ft. rein.-con. bsmnt. Infirmary, ENG-95-507-54-67, Elelson Air Force Base, ALASKA. U. S. Eng., Anchorage, Alaska. Bids June 22. CD 6/30, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† Bachner-Jones, Anchorage, Alaska, LB $746,001, est. $725,019, over-all constr.;

Hall-Atwater Co., 605 13th St., Seattle, Wash., and Reed & Martin, Inc., Fairbanks, Alaska, LB $233,836, Schedule A, three 2-family quarters, 1 story frame, no bsmnt., approx. 2,150 sq. ft., Glenallen;

Burgess Constr. Co., Fairbanks, Alaska, LB $91,590, Schedule B, one 3-family quarters with utilities, Big Delta Junction; LB $93,946, Schedule D, one 3-family quarters with utilities, Northway;

Wayne Constr. Co., 2624 E. 82 St., Seattle, Wash., LB $181,755, Schedule C, three 2-family quarters, 1 story frame, no bsmnt., approx. 2,150 sq. ft., incl. utilities;

Northern Roofing & Sheetmetal Co., LB $99,010, Schedule CC, utilities, Cathedral Bluff; LB $87,092, Schedule E, line maintenance bldgs., 1,500 sq. ft. each, prefabricated steel, at Palmer, Mentasta, Chisto China, Tazlina, foregoing for DUPLEX QUARTERS, etc., for string of ACS installations, Inv. 54-107, ALASKA, U. S. Eng., Anchorage, Alaska. Bids June 24. CD 6/16.

† C. L. Foss Co., Anchorage, Alaska, CA $517,486. SCHOOL, Proj. 50-A-161, CORDOVA, ALASKA. Alaska P. Wks., Dpt. Interior, Juneau, Alaska. Bids May 5. CD 5/12, under LB.

LATIN AMERICA

BUILDINGS

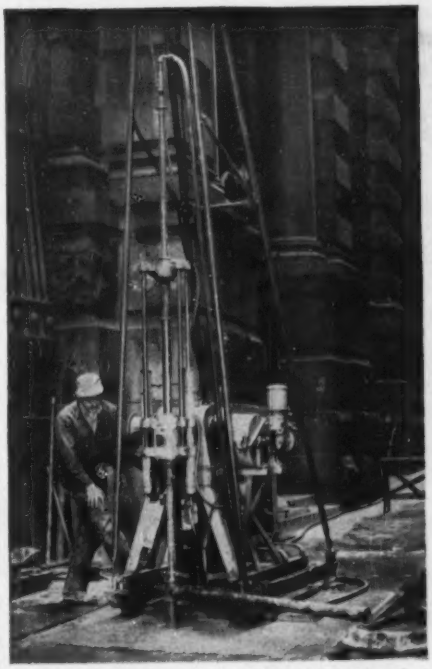
LOW BIDS AND CONTRACTS

▲ Southwestern Eng., Co., 5000 District Bldg., Los Angeles, 58, Calif., CA. Approx. $4,000,000. 5,000 bbl per day REFINERY, catalytic cracker, treating and blending facilities, filling plant, tank farm and loading dock, on Amazon River, MANAUS, BRAZIL. Companhia de Petroleo da Amazonia, Manaus, Brazil.

Proposed Projects

WATER SUPPLY

▲ Md., Baltimore—City, Bureau Water Supply, 503 Municipal Bldg., Zone 2, will vote Nov. 2. $5,000,000



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Here's one of two Acker Teredo Diamond Core Drills on the job for Raymond Concrete Pile Company, making foundation test borings in the heart of the busy financial section of New York City. As repeat purchasers of Acker drills, Raymond knows the dependability, compactness and versatility that characterizes Acker design.

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Whether handling variable heavy-duty loads such as this half-ton, Wisconsin-powered prime mover, made by Prime Mover Co., Muscatine, Ia., or continuous, constant-load assignments . . . Wisconsin Air-Cooled Engines have the inherent "Lugging Power" that *follows through* when the going gets heavy.

This is the result of basic heavy-duty engineering design and construction and such features as tapered roller bearings at BOTH ends of the crankshaft; high tension rotary type OUTSIDE Magneto with Impulse Coupling; dependable, all-weather AIR-COOLING and positive lubrication.

You can't do better than specify "Wisconsin Power" for *your* equipment . . . available in a complete power range from 3 to 36 hp., in 4-cycle single cylinder, 2- and 4-cylinder models.

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Why this conveyor is easy on belts

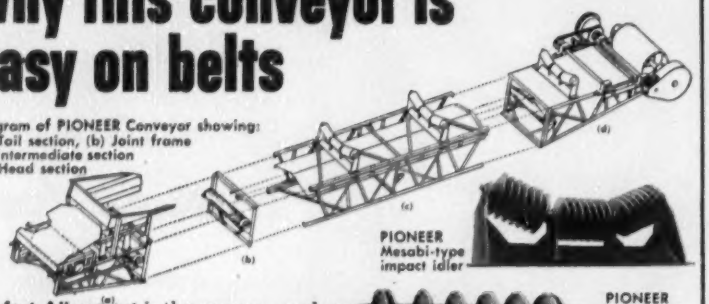


Diagram of PIONEER Conveyor showing:
(a) Tail section, (b) Joint frame
(c) Intermediate section
(d) Head section

PIONEER Mesabi-type impact idler

PIONEER Rubber roll self-cleaning return idler

PIONEER Self-aligning troughing idler

Perfect Alignment is the answer...and far less belt replacement is the result.

First, PIONEER Continuflo Conveyors are jig-built at the factory, with joint frames between the sections to keep them straight and true.

Second, Head and tail pulleys are of large diameter to prevent belt slippage.

Third, Flexible rubber impact idlers absorb shock of falling materials, thus reducing cutting and wear of belt.

Fourth, Specially-designed self-aligning troughing idlers, in addition to forward tilt of regular idlers, hold belt in line.

Fifth, New-type self-cleaning rubber return idlers virtually eliminate build-up of abrasive materials on roller.

Sixth, Rollers and idlers turn easily. Anti-friction bearings are used throughout. This also cuts power requirement.

Needs fewer support towers

Another outstanding feature of PIONEER Conveyors is their extra strength and rigidity. Angle iron construction, welded vertical and diagonal braces, and upper and lower chords tied together with lattice-frame construction make it possible to space support points as far apart as 40 feet.

It's easy to assemble PIONEER conveyors because no section is over 10' in length. Head and tail sections are specially built to meet your H.P. requirements. For details, write Pioneer Engineering Works, Inc., Minneapolis 13, Minn. (subsidiary of Poor & Company, Chicago).

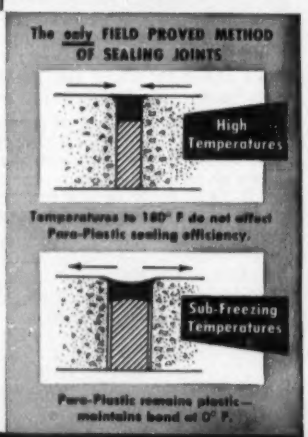
Pioneer Continuflo EQUIPMENT

STOP JOINT SEAL FAILURES!

Use HOT-POURED *Para Plastic*

- *Para-Plastic keeps joints sealed under severest conditions of traffic, temperature*
- *May be pumped directly into joint from melting kettle*
- *Para-Plastic "JF" compound impervious to Jet Fuel or petroleum solvents used in aircraft*

Use Hot Poured Para-Plastic . . . field-proved to be the only effective method of sealing joints with a high degree of permanence. There's no substitute for Para-Plastic . . . nothing equals its sealing performance. It's stable, constant in volume, won't break down and maintains bond under virtually every condition. Para-Plastic can now be pumped directly into the joint from the melting kettle—a fast, simple method of application. Write for details on new method and information on Para-Plastic and Para-Plastic JF.


The only FIELD PROVED METHOD OF SEALING JOINTS
High Temperatures
Temperatures to 180° F do not affect Para-Plastic sealing efficiency.
Sub-Freezing Temperatures
Para-Plastic remains plastic—maintains bond at 0° F.

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budget for water supply constr. during 1955. J. S. Strohmeyer, c/o owner, water engr. CD 8/28/52.

▲ **Mich., Grand Rapids**—City, City Hall, water sys. expansion, incl. pumping station, filter plant, distr. mains, new storage facility, $1,000,000, Consoer, Townsend & Assoc., 351 E. Ohio St., Chicago, Ill., consult. engrs. CD 5/27/53.

▲ **Mich., Holland**—City, Clarence Grovengood, clk., municipal water plant, tunnel park on Lake Michigan, $3,000,000.

SEWERS, WASTE DISPOSAL

▲ **Calif., San Francisco**—City, City Hall, voted $12,645,000 bonds, sewerage system. CD 6/14 Bonds formerly reported defeated.

▲ **Calif., San Rafael**—Las Gallinas Valley Sanitation Distr., San Rafael, $1,200,000 bond election Aug. 24, sewage disposal plant, etc. J. Warren Nute, 1240 4 St., district engr.

▲ **Md., Baltimore**—City, Bureau Sewers, 312 Municipal Bldg., Zone 2, will vote Nov. 2. $5,000,000 budget for sewers during 1955. John J. Hunt, c/o owner, sewerage engr. CD 1/12/45.

▲ **N. C., Raleigh**—City, W. H. Carper, mgr., City Hall, bond election July 24, imprv. sanitary sewerage sys., sewage disposal plant. $2,100,000. (Total cost $3,422,000). CD 2/5.

▲ **O., Bowling Green**—City, $700,000 bond election Nov. 2, overhaul sewage disposal and storm sewer facilities. $1,690,000. CD 1/2/53.

▲ **O., Cleveland**—City, Dpt. P. Utilities, Emil J. Crown, dir., City Hall, bond election Nov. 2, sanitary and storm sewers and conduits. $6,000,000. George W. Hamlin, c/o owner, Utilities Engr. Comr. CD 11/7/52.

▲ **Tex., Corpus Christi**—City, City Hall, Oso and Broadway, Sewage Treatment Plants imprvs. $1,171,538. Sigler, Clark & Winston, Box 428, Weslaco, consult. engrs. CD 11/30.

BRIDGES

▲ **O., Cleveland**—City, Dpt. P. Service, Louis L. Drasler, dir., City Hall, bond election Nov. 2, constr. and reconstr. bridges, $4,500,000. John Heffelfinger, c/o owner, city bridge engr. CD 5/24.

▲ **Ont., Ottawa**—City, N. R. Ogilvie, clk., Hurdman's Bridge replacing existing structure, approaches etc., $1,163,000; extension of road from bridge thru to Green's Creek and junction with Montreal Hy., $468,000; new bridge over Rideau River at Bronson Ave., $700,000 and bridge approaches $1,056,533. J. H. Irvine co owner, works comr. CD 1/23/48, under Ontario.

STREETS AND ROADS

▲ **Mo., Kansas City**—City, City Hall. $19,500,000, bond election Aug. 3, trafficway and boulevard, CD 8/12/52.

▲ **O., Cleveland**—City, Dpt. P. Service, Louis L. Drasler, dir., City Hall, bond election Nov. 2, grading, paving, resurf. city streets, $3,000,000; opening, extending, wid'n., and relocating streets, $2,000,000. A. J. Preusser, streets comr. CD 3/29.

▲ **Tex., Houston**—Harris Co., Court House, constr. and paving road around Lake San Jacinto, near here. $1,500,000. Hugo Zapp, co. engr. CD 3/16/51.

AIRPORTS

▲† **Colo., Colorado Springs**—ACADEMY—Dpt. of the Air Force, The Pentagon, Wash. 25, D. C., air force academy. $126,000,000. (No appropriation)

▲ **Mo., Kansas City**—AIRPORT IMPRVS.—City, City Hall, $8,500,000 bond election Aug. 3, International Airport imprvs., CD 8/12/52.

▲ **O., Cleveland**—AIRPORT TERMINAL, etc.—City, Dpt. P. Properties, John J. Lucuoco, dir., City Hall, bond election Nov. 2, constr. lake-front airport terminal, bulkheading and backfill behind same; landing mats and runways for Cleveland Hopkins Airport. $3,600,000. T. H. Jones, comm. Div. of Design & Constr. CD 5/21.

LATIN AMERICA

▲ **Colombia, Cartagena**—REFINERY—International Petroleum Co. Ltd., Bogota, plans 25,000 bbl. refinery, $30,000,000.

PUBLIC BUILDINGS

▲ **Kan., Kansas City**—POWER STATION—Bd. P. Utilities, 6 St. and Ann Ave., building changes, power generating equip. at Kaw Power Station, $6,000,000. Burns & McDonnell Eng. Co., 95 and Troost Sts., Kansas City, Mo., consult. engr. CD 1/12/51.

▲ **Md., Baltimore**—POLICE BLDGS.—City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, will vote Nov. 2. $3,000,000 budget for police bldgs. during 1955, R. E. L. Williams, c/o owner, bldg. constr. engr.

▲ **Md., Baltimore**—SCHOOL—City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, will vote Nov. 2. $20,000,000 budget for school constr. during 1955, R. E. L. Williams, c/o owner, bldg. constr. engr.

(Continued on page 74)

ANOTHER WAY YOU SAVE WITH FORD *TRIPLE* ECONOMY

T-Series Chassis-Cab models fit any special purpose body from 9 to 19 ft., give you up to 3,800 lbs. more payload than other make 6-wheelers.

New Ford Tandem-Axle Big Jobs

factory-built for low first-cost!

The new Ford T-700 and T-800 BIG JOBS bring famous Ford performance and economy to the extra-heavy-duty field. Ford's mass-production methods keep quality high, first costs low. You get much larger body and payload capacities—up to 95% more on the T-800 than F-800—within legal axle weight limits of most states.

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New *Master-Guide* Power Steering is standard on the T-800 and on the T-700 (with 152-h.p. engine). Operative at all times, it cuts steering effort as much as 75% and practically eliminates road shock to the steering wheel. New Ford *Driverized* Cab and controls provide comfort and driving ease to help the driver do hard jobs faster, with less effort.

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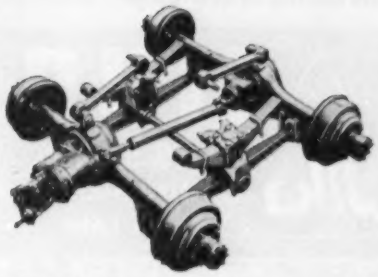

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(Continued from page 72)

▲ **Mass., New Bedford**—SCHOOL—City, 166 Williams St., plans by William Nelson Jacobs, 438 Park Square Bldg., Boston, masonry Central Junior High School, Hathaway Blvd. $2,000,000.

▲ **Mich., St. Joseph**—COURT HOUSE—Bd. Supervs., Berrien Co., 1121 Milton Rd., Benton Harbor, $2,500,000 bond election Aug. 3, 60,000 sq. ft. U-shaped county court house.

▲ **Mo., Kansas City**—EXPOSITION—City, City Hall, $6,000,000. bond election Aug. 3, exposition bldg.,

▲ **Mo., Kansas City**—POLICE BLDGS., etc.—City, City Hall, bond election Aug. 3, police bldg., enlargement garage, $1,000,000; public works field headquarters, $657,000; 8 fire stations, repair and storage facilities, relocation Sixth St. Station, $1,504,000. CD 5/14/53.

▲ **O., Cleveland**—POLICE and FIRE STATIONS—City, Dpt. P. Safety, John N. McCormick, dir., City Hall, bond election Nov. 2, constr. and reconstr. police and fire stations; police and fire training schools, outdoor training facilities. $1,500,000. Anthony Gattozzi, c/o owner, city archt. CD 11/14/50.

▲ **O., Cleveland**—SCHOOL BLDGS., etc.—City, Dpt. P. Health & Welfare, Bell Greve, dir., City Hall, bond election Nov. 2, constr. and reconstr. fireproof bldgs. at Hudson Boys' Farm, Blossom Hill School and Warrensville Workhouse. $2,400,000. Anthony Gattozzi, c/o owner, city archt. CD 5/20.

▲ **O., Cleveland**—HOSPITAL BLDGS., etc.—City, Dpt. P. Health & Welfare, Bell Greve, dir., City Hall, bond election Nov. 2, constr. and reconstr. fireproof bldgs. at City Hospital and constr. health center $2,850,000. Anthony Gattozzi, c/o owner, city archt. CD 5/20.

▲ **O., Columbus**—YOUTH CENTER, etc.—State Dpt. P. Wks., State Office Bldg., plans by Sims, Cornelius & Schooley, 2901 N. High St., youth center and 4-H bldg. at Ohio State Fairgrounds. $1,500,000. CD 1/10/53.

▲ **O., Oxford**—ADMINISTRATION, etc.—Ohio Dpt. P. Wks., State Office Bldg., Columbus, plans by Charles F. Cellarius, 906 St. Paul Bldg., Cincinnati, admin. bldg., $800,000; student center bldg., $1,500,000, at Miami University. CD 3/1.

▲ **O., Parma**—HOSPITAL—City, 6611 Ridge Rd., bond election Nov. 2, 150-bed hospital. $2,500,000. Albert R. Chabek, c/o owner, city engr.

▲ **Wash., Tacoma**—SCHOOLS—School District No. 10, 601 S. 10 St., bond election Sept. 7, West End High School, $2,000,000, Lea, Pearson & Richards, Tacoma Bldg., archts.; Sound End Junior High School adjacent to Harmon playfield, S. 83 and J Sts., $800,000, R. B. Price & M. W. Perrow, 2907 A St., archts. CD 3/15.

▲ **Ont., North Bay**—HOSPITAL—Dpt. P. Wks., Parliament Bldgs., Toronto, plans by G. N. Williams, deputy minister and ch. archt., c/o owner, 1,300-bed mental hospital at Cook's Mill, 5½ mi. north of here, $9,000,000. John D. Millar, c/o owner, deputy minister, engr. div. CD 9/25/51.

▲ **Ont., Toronto**—SCHOOL—Bd. Educ., North York Twp., 7 Kenneth St., Willowdale, high school, Don Mills Rd., Willowdale, $1,600,000.

▲ **Que, Valcartier**—HOUSING—Central Mortgage & Housing Corp., 13476 Guy St., Montreal, 147 apartments at Army Station. $1,500,000. M. P. McAndrew, c/o owner, engr.

COMMERCIAL BUILDINGS

▲ **Conn., West Hartford**—APARTMENTS and OFFICE—William A. Mauser, 333 North Main St., four 7 story apartments, 2 insurance offices, Albany Ave., 72-acre tract south of Albany Ave. $3,000,000.

▲ **N. Y., Brooklyn**—APARTMENT—Avenue Leasing Corp., 97-27 64 Rd., Rego Park, plans by George G. Miller, 125 W. 45 St., New York, Zone 19, 6 story apartment, 2398-2434 Nostrand Ave. $1,250,000.

▲ **N. Y., Jamaica**—APARTMENT—The Winston, Inc., c/o Seelig & Finkelstein, archts., 153 Perrepont St., Brooklyn, Zone 2, 6 story apartment, Wexford Terrace, Edgerton Blvd. $1,960,000.

▲ **N. Y., New York**—SCHOOL, etc.—Church of Holy Rosary, 2950 Eastchester Rd., Zone 67, plans by Frederick Voss, 101 Park Ave., Zone 17, 5 story school and convent, bounded by Arnow Ave., Woodhull Ave., Schorr Pl. and Eastchester Rd. $1,000,000.

▲ **N. Y., New York**—BUILDING ADDNS.—Hippodrome Building Corp., 991 Avenue of America, Zone 17, plans by Kahn & Jacobs, 1 Park Ave., Zone 16, two addnl. floors to 5 story bldg., 1136-1220 Avenue of Americas. $1,500,000.

▲ **O., Columbus**—OFFICE—Columbus Chamber of Commerle, 30 E. Broad St., plans by Eugene T. Benham, 1124 Goodale Blvd., Columbus, 6 or 8 story, 54,000 sq. ft. office bldg. with parking garage for 90 tenants, 30 E. Broad St. $2,500,000.

▲ **O., Dayton**—Y.W.C.A. BLDG.—Young Womens Christian Assn., Bd. Directors, Third and Perry Sts., plans by W. Ray Young & John Sullivan, Jr., Third Natl. Bldg., 1,308,828 cu. ft. Y.W.C.A. Bldg. $2,000,000.

▲ **O., Toledo**—HIGH SCHOOL—Catholic Diocese, Bishop George J. Rehring, 2544 Parkwood St., plans by Betz & Bankemper, 319 Scott St., Covington, Ky., 3 story Boys' High School, W. Bancroft St. and Parkside Blvd., to be operated by Oblate Fathers of St. Francis De Sales. $1,000,000. CD 6/10.

▲ **Pa., Berwyn**—RESIDENCES—William S. Peace, 69 and Walnut Sts., Upper Darby, residential development, Waterloo and Newtown Rds. $5,000,000.

▲ **Tex., Houston**—HOTEL—Leo F. Corrigan, Merchantile Bank Bldg., Dallas, hotel in south end of business

dist. area, $17,500,000; resort-type hotel, somewhere south of Shamrock Hotel, $10,000,000.

▲ **Vt., Rutland**—HOSPITAL—Rutland Hospital, John R. McLaughlin, pres., Nichols St., plans by Ellerbe & Co., First Natl. Bank Bldg., St. Paul, Minn., hospital $2,000,000. CD 3/13/52.

▲ **Wash., Seattle**—SHOPPING CENTER—Continental, Inc., & E. C. Swanson, 810 Second Ave., plans by Young, Richardson, Carleton & Detlie, Central Bldg. shopping center, $10,000,000.

▲ **Hawaii, Honolulu**—RESORT HOTEL—Clint Murchison, Jr., 1201 Main St., Dallas, Tex. and Trousdale Constr. Co., Paul W. Trousdale, pres., 650 N. Sepulveda Blvd., W. Los Angeles, Calif., 12 to 15 story, 400-500 room resort hotel. $15,000,000.

INDUSTRIAL BUILDINGS

▲ **Conn., Fairfield**—FOUNDRY—J. W. Bullard Mfg. Co., 1342 Kings Highway Cutoff, Fairfield, casting foundry $6,000,000.

▲ **Ill., Glenview**—FACTORY—Signode Steel Strapping Co., 2600 N. Western St., Chicago, plans by Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Zone 3, factory, Lake St. near Pfingsten Rd., near here, $6,000,000. CD 11/8.

▲ **Mo., St. Louis**—DISTRIBUTION CENTER—Gulf Refinery Co. of Delaware, A. M. Gootsch, dist. mgr., 2120 Locust St., constr. distr. center on 8 acres site at 3800 south between Mississippi River and Main St. to incl. large warehouse on river frontage, loading and unloading docks, 20 steel storage tanks, etc. $1,000,000.

▲ **N. M., Carlsbad**—PLANT—National Farmers Union, 1555 Sherman St., Denver, Colo., potash plant, $12,000,000-$14,000,000.

▲ **O., Ashland**—PLANT—Union Malleable Mfg. Co., Ashland, plant addn., incl. foundry to make "U" pipe fittings, Nankin Rd. $8,000,000.

▲ **O., Ashtabula**—PLANT—Electro-Metallurgical Co., 30 E. 42 St., New York 17, N. Y., titanium producing plant, capacity approx. 10,000 tons sponge per year. $30,000,000.

▲ **O., Martins Ferry**—GALVANIZINE LINE—Wheeling Steel Co., Wheeling, W. Va., continuous galvanizine line to produce sheets and strip. $4,000,000.

▲ **N. B., St. John**—PLANT—Atlantic Sugar Refineries Ltd., Box 7, Montreal, Que., plant expansion, Charlotte St. $2,750,000. Jas. A. Gairdner, c/o owner, pres.

UNCLASSIFIED

▲ **Colorado and Kansas**—OIL PIPE LINE—Sinclair Pipeline Co., Sinclair Bldg., Independent, Kan., 494 mi. 18 in. crude oil pipe line, Arapahoe Pipeline, southeast of Merino, Colo., to Great Bend, Kan. $25,000,000.

▲ **Md., Baltimore**—CONDUIT—City, Bureau Electric Service, Municipal Bldg., Zone 2, will vote Nov. 2 $1,000,000 budget for conduit constr. during 1955, J. Strauss, c/o owner, engr.

▲ **Mo., Kansas City**—PARK IMPRVS.—City, City Hall, $3,289,000 bond election Aug. 3, park imprvs. CD 11/10/47.

▲ **Mo., Kansas City**—TRACK INTERCHANGE SYSTEM—Kansas City Terminal Ry. Co., F. J. Ackerman, ch. engr., Union Station, Kansas City 8, Mo., automatic track interchange sys. for interchange of R. R. State Line to Fourth and Pennsylvania Sts. $2,600,000, T. W. Avery, asst. ch. engr.

▲ **Mo., Kansas City**—RECREATIONAL PARK—Jackson Co., Court House, Independence, 3,000 acre recreational park, near Chapel Rd. $2,971,000. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs.

▲ **O., Cleveland**—PARKS, etc.—City, Dpt. P. Properties, John J. Lucuoco, dir., City Hall, bond election Nov. 2, park imprvs., incl. lake-front recreational facilities, constr. and reconstr. fireproof bldgs., underpasses, bulkheading and jetties and backfilling behind same, $4,350,000; recreation centers, playgrounds, swimming pools and site development, $2,700,000. T. H. Jones, c/o owner, comm. Div. Design & Constr. CD 5/21.

▲ **O., Cleveland**—ZOO BLDGS., etc.—City, Dpt. P. Properties, John J. Lucuoco, dir., City Hall, bond election Nov. 2, constr. and reconstr. fireproof bldgs., developing parking areas and site imprvs., Cleveland Zoo. $1,000,000. T. H. Jones, comm. Div. Design and Constr.

▲ **O., Cleveland**—PARKING—City, City Hall, Zone 14, bond election Nov. 2, off street parking, $4,000,000. City Planning Comm., George N. Wallace, c/o owner, Ch. City Planner. CD 11/7/52.

▲ **O., Cleveland**—HARBOR DEVELOPMENT—City, Dpt. P. Service, Louis L. Drasler, dir., City Hall, bond election Nov. 2, constr., reconstr. buildings, bulkheading and backfilling behind same, along Lake Erie and the Cuyahoga River, incl. purchase and installation equipment for wharves and docks. $2,000,000. John C. Wenrick, c/o owner, city engr. CD 5/24.

▲ **Pa., Pittsburgh**—AQUARIUM—Sarah Mellon Scaife Foundation and Allegheny Conference for Community Dev., Magee Bldg., plans by Mitchell & Ritchey, Alcoa Bldg., aquarium, Highland Park. $1,000,000.

▲ **Texas**—TRANSMISSION LINE—Brazos River Auth., Mineral Wells, constr. electric power transmission line of 230,000 kv. between Fort Worth-Dallas areas to Houston, Galveston, Beaumont. $15,000,000.

PIASECKI HOOKS ON TO

SAFETY WITH LAUGHLIN

From Thule to Tahiti versatile Piasecki helicopters are building a new tradition of usefulness and dependability. It's the kind of service where equipment has to be right—*all the time.* That's why Piasecki looked to Laughlin as the logical source for the swivel safety hooks used on the end of lifting and rescue cables in both rescue and workhorse helicopters.

These Duronze #3 safety hooks are non-sparking, have silicon bronze spring, bolt and latch, provide 90,000 lbs. ultimate tensile strength/sq. in. and are available from stock. Because the latch locks the load, it *can't* jolt off accidentally.

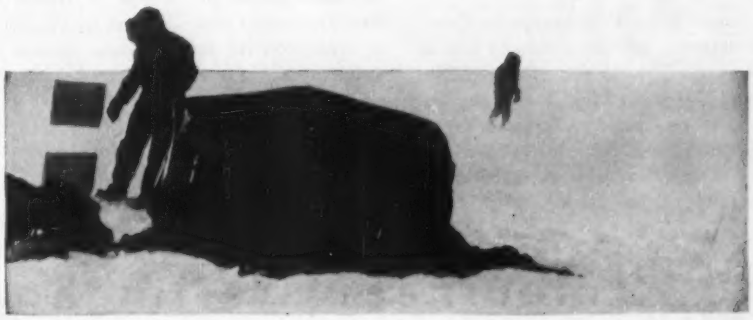
More and more safety- and economy-minded manufacturers are learning that Laughlin is their best source for quality drop forged fittings for wire rope and chain. Over 1500 types and sizes immediately available from stock make ordering easy.

Why not ask your supplier salesman to show you how Laughlin products can help in your business? Or write for new Catalog No. 155.

For Safety's Sake say

LAUGHLIN THE FULL LINE OF WIRE ROPE AND CHAIN FITTINGS

The Thomas Laughlin Company, 713 Fore St., Portland, Maine



Pushed by 109 hp tractor, Tournapull heaps 11½ pay yards of tough-loading "Western New York" clay in narrow spaces between overpass pillars. Average load distance: 125 ft. Time: 90 seconds.

Tournapull makes 90° turn to get out of narrow loading area. At times unit had to back out of this limited work space before beginning haul. Its fast reverse gears (speeds to 12 mph) proved a great advantage on this job.

BIG SCRAPERS show versatility . . .

handle production dirtmoving plus clean-up work on 3-level overpass for N.Y. Thruway

When the New York Thruway is completed, not a single stoplight nor grade intersection will interrupt its 535-mile length. Traffic on existing highways, crossing the Thruway, will be carried safely over or under it.

Near Buffalo, where busy Wehrle Drive and Park Club Lane intersect the new expressway, a three-level overpass was necessary. Buffalo Contractor William J. Crawford handled all dirtmoving here under sub-contract with DePew Paving Co., DePew, N.Y.

5500 yds. daily on production dirtmoving

His 3 new 16-yd. C Tournapulls, Crawford reports, did an excellent job in moving the 320,000 cu. yds. of tough-loading "Western New York" clay involved in this project. Foreman Frank A. Recchio gives these production figures: "Under favorable conditions, we could depend on getting 5,500 yards per 10-hour day from the 3 C Tournapulls. They're great machines."

Operator Walter Szulewski agrees. "In one two-week period, we moved 68,000 yards on a ¾-mile one-way haul," he says. "'C's' are better than anything in construction."

Backs up at 12 mph

Tournapulls not only posted a fine record on production dirtmoving, but they also distinguished themselves on final clean-up and finishing.

When photos were taken, Tournapulls were working in areas only 30' wide. Here, they maneuvered between steel beams to move about 5,000 cubic yards of clay from around concrete overpass piers. To get out of loading area, Tournapulls at times made a non-stop 90° turn in the 30' width. If traffic interfered, units backed up at speeds to 12 mph. Positive steer (scraper locked to prime-mover through geared kingpin) prevented jackknifing.

Write or call for more information

If your next job involves narrow quarters or tough material, you'll want to investigate Tournapulls before you begin work. Ask us for owner-verified production figures on jobs similar to yours. Or, if you would like to check Tournapulls in action on your own job, we'll be glad to arrange a demonstration. Comparative cycle time on weighed loads will quickly prove to you the way to get lowest-net-cost-per-yard in these days of close bidding. Don't take anyone's word for it . . . see for yourself what a Tournapull can do!

Tournapull spreads 11½ yds. of clay on overpass approach. This machine was 95% mechanically efficient in 800 hours on the job. Crawford bought the three 16-yd. "C's" shown here new last year, after using three older 13½-yd. electric-control "C's" satisfactorily for 5 years.

Tournapull—Trademark Reg. U.S. Pat. Off. P-615-H-b

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 23, August 3 Massachusetts
STREETS AND ROADS
July 20, 27 Massachusetts

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **RHODE ISLAND**—State Purch. Agent, State House, Providence,

Harris Structural Steel Co., 419 Fourth Ave., New York, N. Y., CA **$3,816,777**, constr. superstructure of Sakonnet River Bridge, Sakonnet River, Contr. 5453, Portsmouth-Tiverton. Bids June 16, awarded June 30. CD 6/22, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **The Myrose Corp.**, c/o Chizner Brothers, 26 Court St., Brooklyn, N. Y. Owner Builds. **$4,500,000-$5,000,000** 12 story, APARTMENT, Asylum and Garden Sts., HARTFORD, CONN. Kane & Fairchild, 734 Asylum Ave., Hartford, Conn., archts. CD 4/7/53.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 23 Pennsylvania
STREETS AND ROADS
July 20 Maryland July 23 Pennsylvania
July 27 New Jersey

BIDS ASKED—BUILDINGS

▲ **N. Y., Brooklyn**—HOUSING—BA 8/3—New York City Housing Auth., 299 Broadway, New York Zone 7, foundations and general constr.; heating and ventilating; electrical work; plumbing; furnishing, erecting elevators for Coney Island Houses (Proj. NYC-25) in area bounded generally by Surf Ave., W. 29 St., Boardwalk and W. 32 St. Plans deposit $75, $25 elevators. CD 2/2.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Depew Paving Co., Inc., 4955 Broadway, Depew, N. Y., LB **$1,394,122**, est. $1,600,000, 6.84 mi. Sinclairville-Cassadaga, Pts. 1 and 2, SH 1012-1012A-8108, Pratt Corner-Sinclairville, SH. 1471, FARC 54-75, Chautauqua Co.; LB **$2,496,252**, est. $2,690,000. 10.07 mi. Ellicottville-Springville, Pts. 2 and 3, Springville Village, SH 989, Hamburg-Springville, SH 528, FASSH 54-13, FARC. 54-76, Cattaraugus and Erie Counties;

Serafini Constr. Co., Inc., Conklin Rd., Binghamton, N. Y. LB **$537,647**, est. $603,000, 3.85 mi. SH. No. 273-Magee, Cont. No. 1, FASSH. 54-12, Seneca Co.;

Mt. Vernon Contg. Corp. & S. A. Healy Co., 439 N. Terrace Ave., Mt. Vernon, N. Y., LB **$2,787,448**, est. $3,182,000, Major Deegan Expressway Exten. Cont. 5A (1.00 Hy.) (3.12 Acc.). mi. FAMDE. 54-5, Bronx Co.;

King Paving Corp., Alplaus Rd., Schenectady, N. Y., LB **$221,784**, est. $243,000, 2.33 mi. Ticonderoga-Montcalm Landing, SH. 8073, FARC. 54-73, Essex Co.;

Lancaster Development, Inc. and Boland & Martin, Dunkirk, N. Y., LB **$467,477**, est. $566,000, 7.67 mi. Whallonsburg-Essex, SH 8063, Essex-Willsboro, Pt. 1, SH. 8128, FARC. 54-75, Essex Co.;

Asphalt Stone Products, Inc., Schenectady, N. Y., LB, **$478,952**, est. $530,000. 8.27 mi. Schenectady County Line-Scotch Church, SH 1706, Scotch Church-Galway-Kimballs Corners, SH 1851, FARC 54-8, Saratoga Co.;

Worlock Stone Co., 128 East Center St., Canastota, N. Y. LB, **$143,746**, est. $161,000, New York State Thruway-Mohawk Sect.-Sub. 2 (Canastota Gas Station, restaurant site, Type B). M. T. 54-3, Madison Co.;

Central New York Contg. Co., Inc., Syracuse, N. Y., LB, **$777,471**, est. $845,000, 9.58 mi. Dryden-Harford, SH 8016; Harford Mills-Dryden, Pt. 1, SH 1075; Harford, SH 379 and Richford-Harford Mills, SH 1452, FARC. 54-77. Tompkins, Cortland and Tioga Counties;

Buffalo Crane Co., Inc., 1415 Niagara St., Buffalo 13, N. Y., LB, **$289,710**, est. $309,000, 0.21 mi. Harlem Ave. C. R. 210, FASS. 54-11, Erie Co. Bids July 1. CD 6/8.

▲† **J. W. Bateson Co., Inc.**, Gibraltar Life Bldg., Dallas, Tex., CA **$3,310,000**. operations bldg., control tower, etc., Dover Air Force Base, No. 36-109-54-190, DOVER, DEL. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Bids June 10. CD 6/24, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Turner Constr. Co.**, 420 Lexington Ave., New York 17, N. Y., CA Approx. **$10,000,000**. altering PRINTING PLANT, BROOKLYN, N. Y. Daily News, 220 E. 42 St., New York 17, N. Y. Lockwood Greene Engineers, Inc., 10 Rockefeller Plaza, New York, N. Y., engrs.

▲ **Gramercy Gardens Homes**, c/o Albert Meklenburg Organization, 1038 Northern Blvd., Roslyn, N. Y. Owner Builds. **$4,200,000**. 300 HOUSES, Sunrise Hy. and Cartwright Blvd., MASSAPEQUA PARK, N. Y.

▲ **Paul Tishman Co., Inc.**, 21 E. 70 St., New York 21, N. Y. CA **$7,958,448**, general constr.;

Harry Starkman & Bros., 348 Brook Ave., New York 54, N. Y., CA **$687,000**, heating and ventilating;

J. L. Murphy, Inc., 340 E. 44 St., New York 17, N. Y. CA **$794,200**, plumbing for General Grant Houses, Proj. No. NY-5-30, Sect. 1, incl. Bldgs. Nos. 1 to 5 inclusive and garage bldg. in area bounded generally by W. 125 St., Amsterdam Ave., LaSalle St. and Broadway, Manhattan Boro. NEW YORK, N. Y. New York City Housing Auth., 63 Park Row, New York 38, N. Y. Grand total **$9,439,648**. Bids May 25. CD 5/27, under LB.

▲ **Sherry Richards Co., Inc.**, 228 W. LaSalle St., Chicago, Ill., CA **$13,349,300**, est. $17,757,432, 2, 3, 8 story, brick, steel General HOSPITAL, Bower Hill Rd., Scott Twp., PITTSBURGH, PA. Bd. Comrs., Allegheny Co., County Office Bldg., Pittsburgh, Pa. Bids May 18. CD 5/27, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 23 Kentucky, Virginia August 4 Virginia
STREETS AND ROADS
July 23 Kentucky, Virginia

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Norfolk Dredging Co.**, Campostella Wharf, Norfolk, Va., CA **$3,236,340**. Craney Island Disposal Area, near Norfolk, ENG-44-110-54-29, Norfolk Co., VIRGINIA. U. S. Eng., foot of Front St., Norfolk, Va. Bids June 24. CD 6/29, under LB.

▲† **Morrison-Knudsen Co., Inc.**, 411 W. 5 St., Los Angeles, Calif., and **Blythe Bros.**, 2911 Hutchinson Ave., Charlotte, N. C. CA, **$5,323,311**. taxiways, aprons, clearing, grubbing, drainage, paving, lighting, Alvin Callender Field, NOY 81837, NEW ORLEANS, LA. Eighth Naval Dist., Bldg. 16, Naval Station, New Orleans, La. CD 6/25, under LB.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

Traylor Bros., Inc., Upper Mt. Vernon Rd., Evansville, Ind. CA **$2,928,298**. Contr. 1-A-B-C, 12.3 mi. of proposed 40 mi. toll turnpike between Louisville and Elizabethtown, Kentucky Turnpike Proj. No. 1. CD 7/7, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Ray M. Lee Co.**, 1004 Edgewood Ave. N. E., Atlanta, Ga. CA, **$2,779,709**. 3 story, 124,000 sq. ft., rein.-con. military HOSPITAL TAMPA FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. Bids May 18. CD 5/12.

▲ **Sullivan & Corzart**, 822 W. Kentucky St., Louisville, Ky. CA, **$3,000,000**. SHOPPING CENTER, incl. 44 stores, 1 and 2 story structures, 284,000 sq. ft. plot area 23 acres, PLEASURE RIDGE, KY. Plaza Centers, Inc., Wm. A. Gardner, pres., Coleman Bldg., Louisville, Ky. Awarded June 25. CD 3/25.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 27 Indiana
STREETS AND ROADS
July 27 Indiana August 3. Ohio

BIDS ASKED—BUILDINGS

▲ **Wis., Milwaukee**—SHOPPING CENTER—BA 7/22—Ed Schuster & Co., Inc., 2153 N. 3 St., "Capitol Court" Shopping Center. $15,000,000. John Graham & Co., 1426 5 Ave., Seattle 1, Wash., and Brust & Brust, 135 W. Wells St., Milwaukee, Zone 3, archts. Extended date. CD 5/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,

V. N. Holderman & Sons, Inc., 890 Oakland Park Ave., Columbus, O., CA **$3,181,345**, est. $3,706,300, Type T-71 and structures, 9.951 mi. U. S. R. 35, Sects. (0.13-9.45), F-605 (10), Beaver Creek and Xenia Twps. and City of Xenia, Greene Co. CD 6/24, under LB.;

C. F. Replogle, Box 308, Circleville, O., CA **$1,646,829**, est. $1,874,500, Type T-71 and structures, 7.773 mi. U. S. R. 42, Sects. (3.05-8.03), FI-1015 (1), Milton and Montgomery Twps., Ashland Co. Bids June 22. CD 7/1 under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **College Heights Co.**, 110 and College Ave., Indianapolis, Ind. Owner Builds. **$3,000,000**. 230 HOMES in College Heights, INDIANAPOLIS, IND.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 23 Minnesota, North Dakota July 27 Montana
STREETS AND ROADS
July 23 Minnesota, North Dakota July 27 Montana

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Del E. Webb Constr. Co. & Aldon Constr. Co.**, 5101 San Fernando Rd., West Los Angeles, Calif., Own Forces. **$100,000,000**. 6,000 RESIDENCES, SCHOOLS, SHOPING CENTERS, playgrounds, community facilities. DENVER, COLO.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 28 California
STREETS AND ROADS
July 28, 29 California

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Vinnell Co.**, 1145 Westminster Ave., Alhambra, Calif. CA, **$4,633,150**, est. $6,995,000. modification hangar, maintenance shop at Edwards Air Force Base, ENG-04-353-54-103, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. CD 6/30, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Imperial Building Co.**, 470 Beverly Blvd., Beverly Hills, Calif. CA, **$3,002,300**. 328 frame, stucco DWELLINGS, 118 St., 11e, 119 Pl., LENNOX, CALIF., Delaware Co., 470 Beverly Blvd., Beverly Hills, Calif. Wm. A Bray, 962 N. LaCienga St., Los Angeles, Calif., archt.

▲† **George A. Fuller Co.**, 3100 W. Eighth St., Los Angeles, Calif. CA **$6,576,000**. Naval HOSPITAL addn., NOY 81916, Spec. 42162, SAN DIEGO, CALIF. Dpt. Navy, Eleventh Naval Dist., San Diego, Calif. Bids June 24 awarded June 29. CD 6/30, under LB.

▲ **H. G Reed Barrett and P. I. Wilsey & Co., Inc.**, 1800 W. Sepulveda Blvd., Torrance, Calif. CA, $3,988,000, est. $3,000,000. construct, manage and finance military HOUSING Proj. TWENTYNINE PALMS, CALIF. Dpt. Navy, Eleventh Naval Dist., San Diego, Calif. Bids June 2, awarded June 23. CD 6/7, under LB.

CANADA

BIDS ASKED—BUILDINGS

▲ **Ont., Toronto**—APARTMENT—BA 7/20—City Park Apartments Ltd., c/o McCarthy & McCarthy, Canada Life Bldg., 330 University Ave., apartment proj., incl. 3 bldgs., 14 story each, rein.-con., block bounded by Yonge, Alexander, Church and Wood Sts. $8,000,000. Peter Caspari, 102 Eglington Ave. E., archt. CD 2/8/54, under Woodander Ltd. as owner.

▲ **Ont., Oshawa**—HOSPITAL—BA 7/23—General Hospital Bd., Oshawa, 6 story, 65x169 ft., concrete, stone, brick hospital addn. $2,700,000. Extended date. Govan & Assoc., 17 Davenport Rd., Toronto, archts. CD 6/18.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **George Hardy**, 163 Wicksteed Ave., Toronto, Ont. LB **$6,637,126**. West Block of Veterans Affairs MEMORIAL BLDGS., Wellington St., OTTAWA, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids June 30. CD 5/18.

▲ **Dominion Bridge Co. Ltd., Lachine, Que.**, mill steel work;

Leonard Constr. Co., 37 S. Wabash St., Chicago, Ill., U. S. A., acid plant;

Noranda Engineering Co. Ltd., 36 Park Lawn Rd., Etobicoke, Toronto, Ont., crusher erection;

McNamara Constr. Co. Ltd., 42 Industrial St., Leaside, Toronto, Ont., 2 mi. airport runway;

Horton Steel Works, Ltd., 40 Jennet St., Fort Erie, Ont., water tanks for Uranium MINING DEVELOPMENT at Beaverlodge, URANIUM CITY, SASK. Total est. $19,000,000. Gunner Gold Mines Ltd., 25 Adelaide St. W., Toronto, Ont. George Gilchrist, Teck Hughes Property, Kirkland Lake, Ont., engr. Awarded July 5. CD 12/28.

ALASKA

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Morrison-Knudsen Co., Inc.**, 319 Broadway, Boise, Idaho, CA **$2,839,489**. MILITARY INSTALLATION, Inv. 54-88, MIDDLETON ISLAND, ALASKA. U. S. Eng., Anchorage, Alaska. Bids June 25. CD 6/30, under LB.

(Proposal Advertisements see pp. 84 to 87)

NYLON in the U. S. Royal Con-Trak-Tor helps you through the heavy going—*keeps you on schedule!*

ALL-NYLON STRENGTH

The Con-Trak-Tor's Nylon cord body withstands murderous impact . . . means that you get every hour of tire life built into this great U. S. Royal tire.

TRIPLE IMPACT PROTECTION

The Con-Trak-Tor's built with extra rubber between cord-plies—double shock-pads beneath the tread—tough rock-resisting construction at the crown.

FULL LUG TRACTION

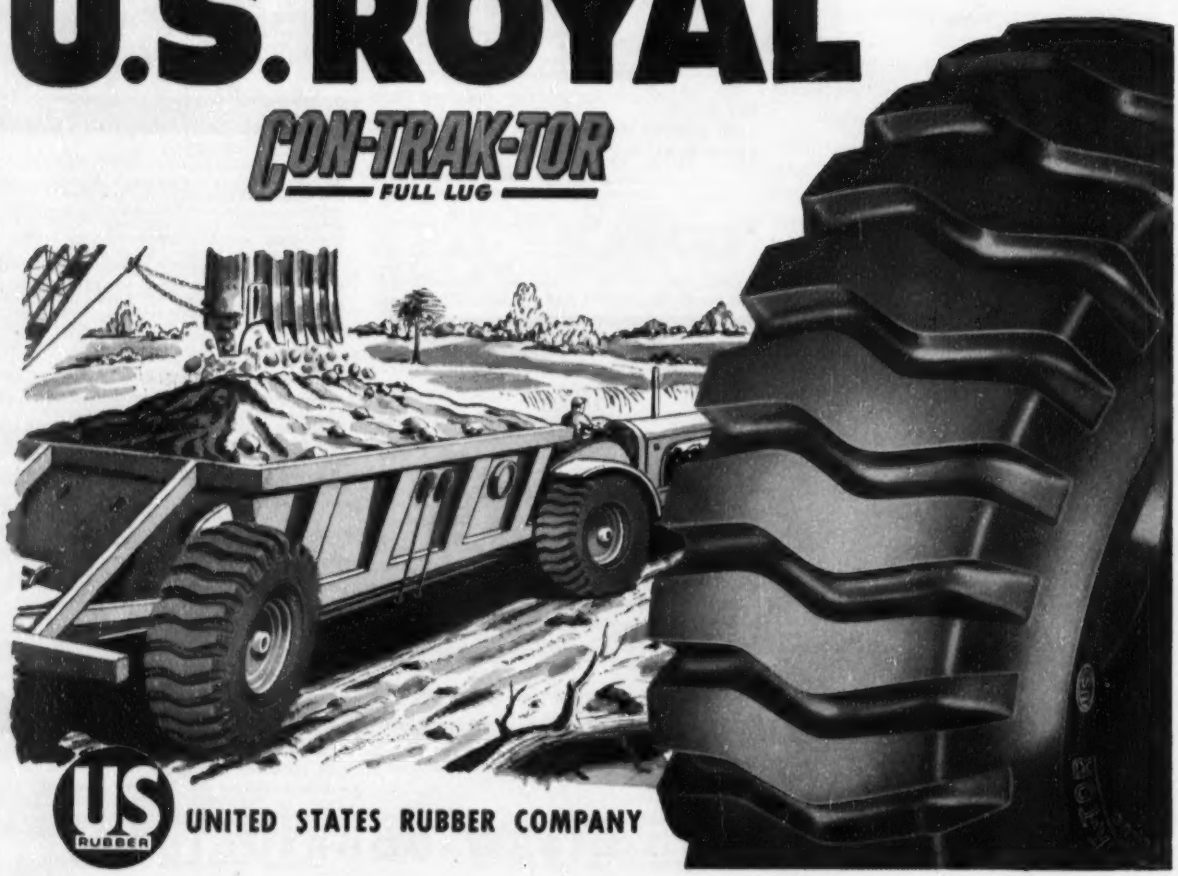
The Con-Trak-Tor's full-width lug design digs deeper, pulls harder in forward or reverse—actually works where other tires stall.

Prove it. Put the Nylon U. S. Royal Con-Trak-Tor to work—watch your pay loads stay on the move. Your U. S. Royal Dealer has it in your size, for your job.

NYLON...Keeps Pay Loads Moving!

U.S. ROYAL

CON-TRAK-TOR
FULL LUG



US RUBBER UNITED STATES RUBBER COMPANY

Bidding lively for Ohio water mains

Lowest of 15 bidders and 3% under second bid, Chas. F. McCurdy, Inc. of Cincinnati submitted the winning $814,209 bid on water and gas mains to the city of Hamilton, Ohio. He won the alternate based on use of both cast iron and concrete pipe. Consulting engineers on this phase of Hamilton's waterworks project reported previously (ENR June 3, 1954, p. 91) are Alfred LeFeber & Associates of Cincinnati.

The project includes 47,944 lin ft of water mains ranging from 6-in to 36-in diameter. Of this amount 19,150 lin ft of 24-in and 30-in pipe will be concrete; the remainder is cast iron. The contract also calls for 20,000 lin ft of 6-in. and 8-in. gas mains, and a 3½-ft cover.

Total length of pipe line construction is 67,944 lin ft.

Bidders submitted labor and materials prices for each item. McCurdy charged 23% of his total price to labor, second bidder Oberer Const. Co. of Dayton allowed 29% for labor. Labor accounted for 47% of the winning contractor's total for the water plant awarded in March.

The second, third and fourth bids were very close: No. 2 was 0.2% under No. 3; No. 3 was only $120 below No. 4.

The $28,376 difference between the contract amount and second low bid was spread evenly, McCurdy consistently underbidding Oberer. Whenever Oberer's unit price was below McCurdy's, there was only a small dollar difference, with one exception: the successful contractor went 69% and $22,500 above second bidder on furnishing and laying 20-in flexible joint, cast iron pipe across the river. On that item second bidder was lowest of 15, charging 26% to labor where low bidder charged 46%. Largest dollar difference between the two in favor of low bidder occurred when McCurdy bid 9% and $17,820 less than second bidder to furnish and place 20-in cast iron pipe, mechanical joint water mains.

Based on the use of cast iron pipe exclusively, the engineer's estimate was $1,065,000.

Third low bidder on the contract which was adopted, Fishel Co., Columbus, was first low on the all cast iron alternate, with a $932,030 bid 12% under the engineer's estimate and just 0.7% under McCurdy's bid. The city of Hamilton saved $18,000 or 19%—the difference between the low bid for both alternates—by choosing cast iron and concrete pipe. The contract figure is 24% below the estimate given for the alternate not chosen.

Work must be completed within 365 calendar days.

Prevailing wage rates in the Cincinnati area allow $2.975 per hr to carpenters and $2.12 per hr to common labor.

All materials will be furnished by the contractor.

Bidders include:

			% for labor
1C	Chas. F. McCurdy, Cincinnati, Ohio	$814,209	23.2
2	Oberer Constr. Co., Dayton, Ohio.	842,585	29.2
15	Byrnes Conway Co., St. Bernard, Ohio	1,220,273	....

Bids: 5-17-54 Item	Unit	Quantity	Unit price 1 C	% for labor 1 C
Water mains, mech jt, f&p CIP: 36"	lf	24	$30.00	33.3
30" *	lf	14,350	22.00	18.2
24" *	lf	4,800	15.50	19.4
20"	lf	14,850	12.30	18.7
18"	lf	1,350	10.40	23.1
16"	lf	7,060	8.60	18.6
12"	lf	4,200	5.80	31.0
10"	lf	50	6.00	33.3
8"	lf	20	5.00	40.0
6"	lf	1,250	2.60	38.5
CI fittings: 36" & 30" *	ton	40	500.00	20.0
24" *	ton	7	500.00	20.0
20" & smaller	ton	30	500.00	20.0
Concrete pipe, f&p: 30"	lf	14,350	15.00	16.7
24"	lf	4,800	12.50	20.0
36", 30", 24" specials	ls	.....	15,000	6.7
Gas mains, mech jt, f&p CIP: 8"	lf	450	3.75	26.7
6"	lf	19,550	2.50	30.0
CI fittings	ton	1	400.00	25.0
Furnish & set valves: cone, flanged, 24"	ea	2	6,000	8.3
20"	ea	1	4,500	11.1
16"	ea	7	3,200	6.3
gate, mech jt, 12"	ea	9	185.00	18.9
10"	ea	2	150.00	16.7
6"	ea	67	60.00	16.7
bell end, bev gr, roller track & scrapers: 30"	ea	1	1,900	21.1
24"	ea	1	1,250	20.0
20"	ea	1	850.00	17.6
(bypass) 18"	ea	1	850.00	17.6
(bypass) 16"	ea	2	650.00	7.7
dbl disc mech 8"	ea	1	80.00	12.5
6"	ea	2	60.00	16.7
corporation cocks ¾"	ea	54	3.00	33.3
Valve vaults	ea	16	500.00	50.0
Gate vlv chambers	ea	11	150.00	66.7
Air release vlv chmbrs	ea	8	100.00	50.0
Furn & set vlv boxes	ea	78	17.50	14.3
extens secs	ea	10	5.00	20.0
CIP, flex jt, across river, f&p 20"	ls	.....	55,000	45.5
Work on exist mains	ls	.....	9,600	58.3
Restore pavement: conc paving	sy	50	6.00	50.0
base w asph surf	sy	1,200	6.00	50.0
mac bs, bit surf	sy	7,000	2.50	50.0
grav, cr stone, slag	sy	200	1.00	50.0
restore conc walks	sf	100	0.50	50.0
crb & gut	lf	100	1.00	50.0
Air release vlv, f&p	ea	8	50.00	20.0
Slag refill	cy	100	2.00	50.0
Fire hydrants, f&p	ea	43	75.00	13.3
Extra excavation	cy	300	2.00	75.0
F&p extra conc cl 1	cy	5	20.00	25.0
2	cy	15	20.00	25.0
3	cy	100	25.00	40.0
reinf steel	lb	1,000	0.10	50.0
Shooting lip	Mbm	10	5.00	20.0
Special backfill	cy	3,300	2.00	25.0
Sil enc pipe, bore 16"	lf	25	20.00	75.0
24"	lf	50	25.00	60.0
30"	lf	85	40.00	50.0
open 30"	lf	25	20.00	75.0
Tap sleeve & vlv, f&p: 8" cl w 8" vlv	ea	2	200.00	50.0
8" x 6" cl w 6" vlv	ea	1	200.00	50.0
6" cl w 6" vlv	ea	3	200.00	50.0

*This alternate not taken.

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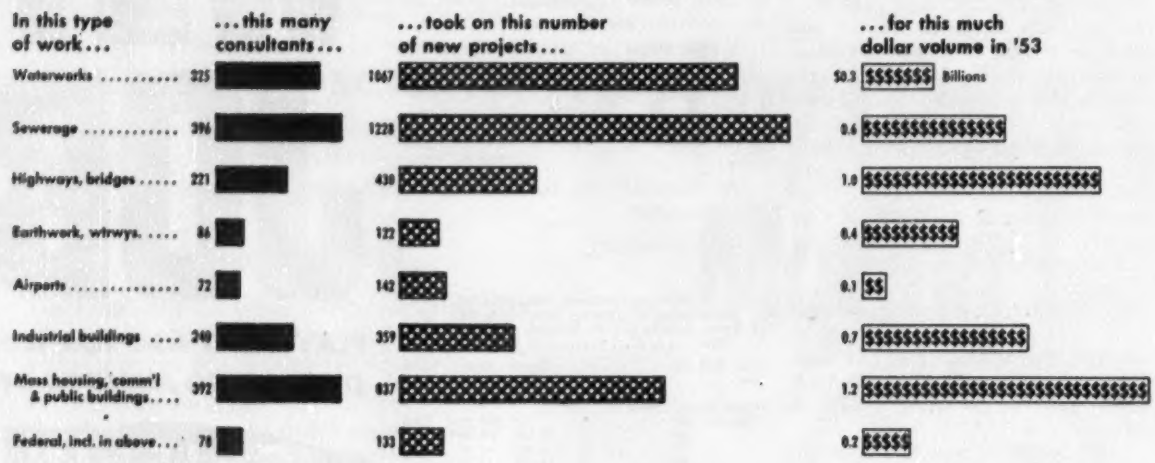
Waterworks and sewerage made up nearly half of all projects signed up by consultants* doing $100,000 or more new business during 1953


In this type of work...
...this many consultants...
...took on this number of new projects...
...for this much dollar volume in '53
Waterworks ..... 325 1067 $0.3 $$$$$$$ Billions
Sewerage ..... 396 1228 0.6 $$$$$$$$$$$$$$
Highways, bridges ..... 221 439 1.0 $$$$$$$$$$$$$$$$$$$$$$$$
Earthwork, wtrwys. .... 86 122 0.4 $$$$$$$$$
Airports ..... 72 142 0.1 $$
Industrial buildings .... 240 359 0.7 $$$$$$$$$$$$$$$$
Mass housing, comm'l & public buildings.... 392 837 1.2 $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
Federal, incl. in above... 78 133 0.2 $$$$$

*Not including architect-engineers, who will be reported separately

©Engineering News-Record

Consulting engineers handle big volume

New projects continued to flow last year in large volume into the offices of consulting engineers. ENR's annual roundup of new business tells the story. As the table (below) shows, consulting engineers signed up 4,863 heavy construction projects of all types last year. There were 1,195 of these firms who took on $100,000 or more in total value of new construction projects. Total estimated cost of all these 1953 jobs topped $4.7 billion.

The chart (above) shows that nearly half of the projects were waterworks and sewerage. Altogether, nonbuilding projects accounted for 75% of the number of jobs handled, and 61% of total dollar volume.

The firms in the group that took on projects totaling $100,000 to $500,000 outnumbered firms in the other two groups.

There were 501 firms in this category, as compared with 494 firms in the group that took on $1 million or more. Average number of projects per firm in the $100,000-to-$500,000 bracket was 1.7, with average dollar volume per project of $205,000 for buildings and $114,000 per nonbuilding job.

• **Million-dollar firms**—Firms in the $1-million-plus group averaged 7.2 projects per firm in 1953. Average building job was about $2,080,000, average nonbuilding was $1,015,000.

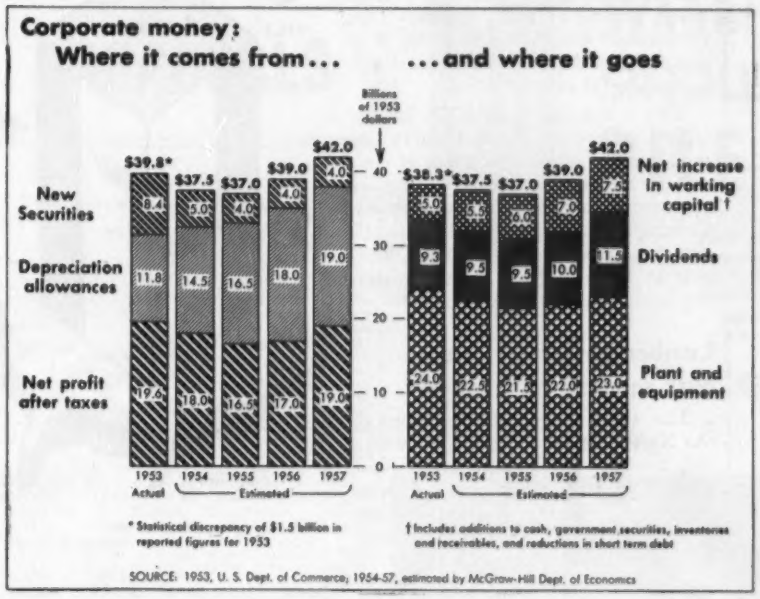
In the middle group, firms which signed up from $500,000 to $1,000,000, the average number of projects per firm was 2.2, nonbuilding projects averaged $209,000, building $410,000.

(*Continued on page 82*)

Consulting engineer* new business in '53—by size of firm and type of work

Type of work	Size by dollar volume of new business									All consulting engineers		
	1—$1,000,000 or more			2—$500,000–$1,000,000			3—$100,000–$500,000					
	Number of . . . consultants	projects	$ volume (millions)	Number of . . . consultants	projects	$ volume (millions)	Number of . . . consultants	projects	$ volume (millions)	Number of . . . consultants	projects	$ volume (millions)
Heavy construction												
Waterworks	172	811	$280	43	77	$14	110	179	$16	325	1067	$310
Sewerage	208	928	543	54	105	22	134	195	22	396	1228	587
Bridges	39	78	237	6	9	3	10	14	2	55	101	242
Highways	84	217	753	18	30	4	64	82	9	166	329	766
Earthwork, waterways	48	72	368	7	8	1	31	42	3	86	122	372
Airports	52	114	121	5	7	2	15	21	3	72	142	126
Unclassified	121	487	445	31	65	17	100	126	20	252	678	482
Total	.....	2707	2747	.....	301	63	.....	659	75	.....	3667	2885
Building												
Industrial	103	194	626	26	40	13	111	125	20	240	359	659
Mass housing, commercial and public buildings	223	651	1132	87	106	47	82	80	22	392	837	1201
Total	.....	845	1758	.....	146	60	.....	205	42	.....	1196	1860
Federal, included in above	59	106	217	6	2	0.4	13	25	3	78	133	220
All construction	**494**	**3552**	**4505**	**200**	**447**	**123**	**501**	**864**	**117**	**1195**	**4863**	**4745**

* Not including architect-engineers who will be reported separately.



THE LONGER LOOK:

Business will have the cash to pay for a high level of capital spending during the next few years

Business expects to maintain a high level of spending for new plant and equipment in the years 1954 through 1957, according to a recent survey by the McGraw-Hill Department of Economics.

But will there be enough money to back up these intentions? If business fails to make a fast recovery from the present slump, would lack of cash force cancellation of expansion plans?

The answer to both questions is: "No." Fortunately, the prospects are that business will have plenty of money to carry out capital spending programs over the next few years, even if there is a substantial drop in corporate profits this year and again in 1955.

In fact, the cash position of corporations should be better than it was in the high-profit years immediately after the war, and even better than in 1953. Unless there is a really severe dip in profits, it is likely that business will be able to make big increases in present plans for expansion and modernization.

• **Sources and uses**—The chart (above) shows the sources and uses of corporate funds for the year 1953 and estimates for the years 1954 to 1957. This chart is based on conservative assumptions which set a reasonable minimum on each source of money available for capital spending and dividends:

(1) Business activity will decline through 1955 and will not regain 1953 levels until 1957;

(2) Competition will prevent any improvement in pre-tax profit margins;

(3) Corporate taxes will stay at 52% in 1954 and 1955 and 50% in 1956 and 1957;

(4) New security issues will be held to a minimum, and there will be no increases in outstanding bank loans.

These assumptions would hold outside money, especially borrowed money, well below 1953 levels. The chart thus emphasizes internal sources of funds, a serious problem for many corporations in the early postwar years. The largest rise in cash will come from increased depreciation allowances. In the late 1940's, most depreciation charges were based on low prewar prices of installed plant and equipment, which yielded allowances way below replacement cost. The relative stability of prices in the last two or three years makes charges on the vast installations of recent years more realistic.

• **Faster depreciation**—Of even greater importance in the next few years will be the faster depreciation schedules permitted under the new tax law. Business is just beginning to gain the benefit of the five-year amortization of defense facilities instituted during the Korean war. Almost $30 billion in plant and equipment is now eligible for such treatment. And the new declining-balance formula, which permits recovery of two-thirds of the cost of a capital item in the first half of its useful life, will add further to depreciation allowances for all types of business.

The size of the likely increase in depreciation allowances can be judged from reliable government estimates of the effect of these new provisions. Depreciation allowances in 1953, totalling $11.8 billion, were almost three times as great as in 1946 and almost twice as large as in 1948. By 1955 they will increase another 40%, and by 1957 they will be over 60% larger than in 1953. Unless a corporation is losing money, the entire depreciation allowance represents an inflow of cash which can be used for capital spending.

• **Net profits**—Profits after taxes, the other major source of funds, will be affected by pressures in both directions. Expiration of the excess profits tax means a smaller chunk out of profits for many corporations beginning this year. And the possible lapse of two to five percent of the present 52% rate on corporate profits in 1955 or 1956 would leave business with as much as $1 billion more in profits after taxes. On the other hand, the speed-up in corporate tax collections under the Mills Plan will draw off more cash even though there is no increase in tax accruals.

One unhappy note is that the bright prospects indicated in the chart apply mostly to larger corporations, and the outlook in general for some industries is none too promising. The bulk of plant and equipment expenditures in the last few years, however, have been made by larger companies. And this trend will probably increase in the future.

Some of the benefit from the improved cash position of corporations is likely to go to stockholders. In the years 1946-1953, an average of only 42% of net earnings went to stockholders in the form of dividends, because of the need for cash for expansion and improvement programs.

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BUSINESS AND FINANCE

All three groups of consultants shown in the table took on only 133 federal projects in 1953, for a total dollar volume of $220 million. This represented less than 3% of all projects and less than 5% of the total dollar volume of new work.

This is the first time ENR has excluded architects–engineers in its annual analysis of new business of consulting engineering firms, so figures are not comparable with previous years. Coming later: reports on architect's new business in 1953, and new business by firms that are both engineering and architectural consultants.

Lumber strike ups prices, puts squeeze on builders

The strike by lumber workers in the Northwest, now about three weeks old, couldn't have come at a worse time. Construction volume has been very heavy during the past three months or so, and demand for lumber is heavy.

The strike already has cut deeply into stocks, which in the case of some dealers were short even before the strike started.

The result: Big price increases across the country in fir and plywood. Fir price tags have been marked higher in 17 of the 20 cities regularly reporting to ENR.

Latest reports received on 2x4 fir showed increases since early June ranging from $5 Mftbm in New York to $41.50 in Birmingham. Four other cities–Baltimore, Denver, St. Louis, and San Francisco–reported boosts of from $24 to $32 per Mftbm. And in nine other cities prices were up $10-20.

Some contractors have switched over to pine, thus boosting pine lumber prices. The rise in pine isn't as great, but it's substantial in some cities.

Pine is up 22% over June in St. Louis, 14% in Cleveland, 13% in Detroit and Dallas.

Some trade observers do not expect lumber production to start again until mid-August, at least. The mills normally shut down for several weeks during the summer for repairs. They say this will be delayed until the strike is settled.

By that time, homebuilders may be in trouble. In many cases, they cannot pass along the price increase because homes they are working on already have been sold. On unsold houses, the competition in most areas is stiff. So builders hestitate to add another $200 to $300 more on house prices.

Activity This Week

As reported to ENR
(In millions of dollars)

Amount of contracts let

	This Week	Cumulative 28 wks. 1954	1953	% chge
Federal	$63.6	$709.3	$883.0	−20
State and Municipal	112.8	2,562.2	2,688.9	−5
Total public	176.4	3,271.5	3,571.9	−8
Total private	254.6	4,285.6	4,781.6	−10
U. S. total	$431.0	$7,557.1	$8,353.5	−10

Contracts by type of work

Waterworks	$3.0	$122.6	$130.6	−6
Sewerage	3.4	207.8	207.8	0
Bridges	8.1	239.6	338.6	−29
Highways	41.6	938.0	973.2	−4
Earthwork, Waterways	7.0	160.3	230.3	−30
Buildings:				
Public, excl. hsg.	57.3	968.1	943.1	+3
Housing, pub.	15.6	135.7	278.1	−51
Housing, priv.	175.2	2,367.6	2,139.8	+11
Commercial	34.0	698.7	583.0	+20
Industrial	25.3	1,004.1	1,502.9	−33
Unclassified	60.5	714.6	1,026.1	−30
Total	$431.0	$7,557.1	$8,353.5	−10

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

(Millions of dollars)	Week of July 8 1954	Cumulative 27 Weeks 1954	% chge 1953-54
Corporate securities	$22.0	$1,636.7	−28
State and municipal:			
All except housing	79.0	3,179.7	+46
Housing	17.3	67.4	−68
Federal loans	2.0	70.3	+10
Federal aid	....	55.0	....
Total non-federal	$120.4	$5,009.1	+6
Federal approps.:			
In U. S.	....	56.0	....
Outside U. S.	....	4.6	....
Total new capital	$120.4	$5,069.7	+7

ENR cost and volume indexes, 1954

		Base years = 100		
Constr. cost	7/8	644.60	309.86	135.13
		1913	1926	1949
	7/1	634.95	305.22	133.11
Bldg. cost	7/8	458.13	247.69	130.23
	7/1	451.54	244.13	128.35
Volume	June	510	207	147
	May	752	648	187

For additional cost index data, see Construction Daily

OFFICIAL PROPOSALS

Bids: July 28, 1954

Construction of Structures

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a. m., Eastern Daylight Saving Time, the 28th day of July 1954, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract:

For the construction of structures and the grading, drainage, and paving of the Turnpike Section 37-B, part of the Northeastern Extension of the Pennsylvania Turnpike in Kidder Township, Carbon County, Commonwealth of Pennsylvania, this section being situated as follows:

Beginning at a point approximately 1274 feet southeast of the center line of Legislative Route 13018, at Turnpike station 592+32 in Kidder Township, Carbon County; thence in a northwesterly direction 21,697 feet to Turnpike station 1169+29 at a point approximately 121 feet southeast of the center line of Fourth Run Creek in Kidder Township, Carbon County, a distance of approximately 4.11 miles.

The approximate quantities of the principal items are as follows:

Class 1 Excavation	936,115 cu. yds.
Class 2 Excavation	11,140 cu. yds.
Class 2A Excavation	2,328 cu. yds.
Special Subgrade	151,158 sy. yds.
Reinforced Concrete Pavement	96,976 sq. yds.
Class A Concrete	855 cu. yds.
Class B Concrete	3,032 cu. yds.
Plain Steel Bars	412,145 lbs.
Fabricated Structural Steel	160,000 lbs.
Median Divider	17,602 lin. ft.

Copies of plans, specifications and other contract documents, including cross-sections, are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on July 9, 1954. Plans, specifications, cross-sections and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of fifty (50) dollars per set.

Plans and contract documents, for this section exclusive of cross-sections and specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of twenty (20) dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P.O. Money Order to the Pennsylvania Turnpike Commission, and must accompany requests for drawings, specifications, contract documents, and cross-sections.

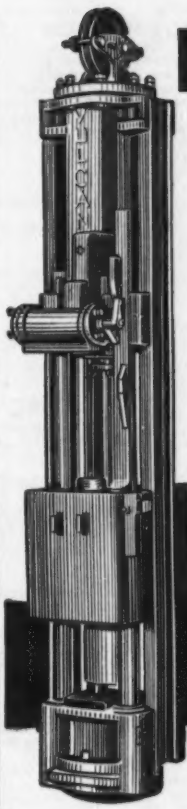
The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commision reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
6 July 1954

(Official Proposals continued on page 84)



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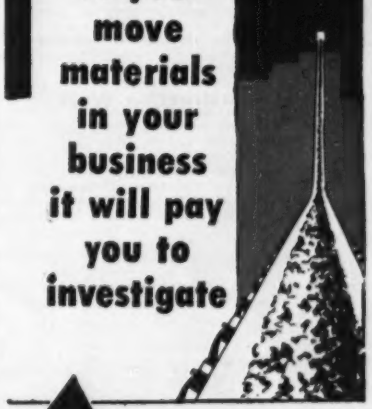

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(Continued from page 83)

OFFICIAL PROPOSALS

Bids: July 22, 1954

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 22nd day of July 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1 N. F. Ronan Acting District Engineer 333 Broadway Albany N. Y.						
Schenectady	R.C. 54-85	Scotia Village: Balliston Avenue S. H. 5496	0.58	Asp. Conc. Opt.	$2,400 Plans $10	$44,000
Washington	R.C. 54-81	Various Highways (Tree Removal)	....	Removal of 166 Trees	$900 Plans $10	16,000
DISTRICT No. 2 L. Ketchum District Engineer, 109 No. Genesee Street, Utica, N. Y.						
Oneida	FARC 54-83	Verona-Rome, S. H. 5521	(6.14)	9' Cem. Conc. Pavt. 24'-30' Wide = 5.92 Mi;	$110,000	1,990,000
		Rome Roads, Augusta & Westmoreland Sects, S. H. 564	(Hwy.) (0.64)	Asp. Conc. Opt. = 0.31 Mi. F.C.R.O.B. Grav. = 0.55 Mi.	Plans $25	
		Proj. F-U-186(2)	(Acc.)			
DISTRICT No. 3, William Robinson, District Engineer, Weigh Lock Building, Syracuse, N. Y.						
Onondaga	R.C. 54-78	Various Highways (Tree Removal)	....	Removal of 122 Trees	$600 No Plans	11,000
DISTRICT No. 4 E. G. H. Youngmann, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Monroe	LOSP 54-1	Lake Ontario State Parkway, Sect. D; Access to Long Pond Road Interchange and Dewey Ave. Interchange	2.93	Asp. Conc. Opt. = 0.18 Mi; Grading = 2.43 Mi. Misc. Work = 0.32 Mi. 3 Cl. Box Brs. 30.3', 30.3' and 25.2'	$60,000 Plans $25	1,033,000
Wyoming	FARC 54-80	Wales Center-Varysburg, Pt. 2, S. H. 8092 Proj. F-28(3) Cont. #2	0.85	Asp. Conc. Opt.	$12,000 Plans $10	220,000
DISTRICT No. 5; C. R. Waters, District Engineer State Office Building, Buffalo, N. Y:						
Cattaraugus	FAC 54-7	City of Olean: South Union St. Proj. U-141(5)	(0.30) (Hwy.) (0.09) (Acc.)	Asp. Conc. Ty. 2A = 0.18 Mi. Asp. Conc. Ty. 2B = 0.10 Mi. Asp. Conc. Ty. 2A (Acc.) = 0.09 Mi. Misc. Work = 0.02 Mi. Hy. Comp. I-Beam Br. 530'	$41,000 Plans $25	750,000
Cattaraugus and Erie	R.C. 54-79	Br. No. 1, S. H. 8018A & Br. No. 3, S. H. 1665	....	Cleaning & Painting Bridges	$1,400 Plans $10	25,000
DISTRICT No. 6, James H. Thomas, District Engineer, State Office Building, Hornell, N. Y.						
Steuben	FATC 54-2	Corning City: Erie Ave.-Denison Pkwy. FAC 53-19 Corning City: Denison Pkwy. Ext. FAC 49-4 Proj. U-225(8) Cont. #2	....	Traffic Signal System	$800 Plans $10	15,000
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Ulster	FARC 54-82	Saugerties-Palenville, Pts. 1A & 1B S. H. 1668-8176 Proj. F-280(2)	2.99	Asp. Conc. Opt. Conc. Twin Box Br. 24.2'	$42,000 Plans $15	750,000
DISTRICT No. 9, F. W. Donovan, District Engineer, 71 Frederick Street, Binghamton, N. Y.						
Delaware	FARC 54-84	Bovina Center-South, S. H. 951 Proj. S-414(1)	0.45	Bit. Mac. Ty. 1, Pen. Method = 0.43 Mi; Misc. Work = 0.02 Mi. Comp. I-Beam Br. 78.5' Twin Box Br. 30'	$14,000 Plans $15	249,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Bids: August 6, 1954

Construction Work

NOTICE TO CONTRACTORS: THE POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of Cofferdams A and B, unwatering Cofferdam area, construction of bridge, and incidental work for Long Sault Dam, near Massena, St. Lawrence County, New York, until 10:30 A.M. Eastern Standard Time on the 6th day of August, 1954 at the Authority's Office, 270 Broadway, Room 1207A, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

The principal items of work are:

SCHEDULE NO. 1

Estimated: 1,000,000 cu yds	Excavation (Various Classes)
260 cu yds	Concrete
20,000 lbs	Reinforcement Steel in Structure
100 tons	Structural Steel
55 Mfbm	Timber in Structure
114,000 cu yds	Earthfill in embankment
275,000 cu yds	Rockfill and Riprap
6,350 ac.-ft	Unwatering

AND

SCHEDULE NO. 2—ALTERNATE I

3,750 Mfbm	Timber Crib Cofferdam
1,030 tons	Steel Sheet Piling
76,000 cu yds	Rockfill in Cribs

OR

SCHEDULE NO. 3—ALTERNATE II

4,050 tons	Steel Sheet Piling
110,000 cu yds	Cell Fill, Earth

Plans, specifications and Proposal Forms for the work are on file in the Authority's Office and in the offices of the Engineers, Sanderson & Porter and Uhl, Hall & Rich, 52 Broadway, New York 4, New York and 230 Congress Street, Boston 10, Massachusetts; The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications and proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and payment of a fee of Fifty ($50.00) dollars, no part of which will be refunded.

Bids must be made upon the proposal forms included in the Contract Documents. Each proposal must be accompanied by draft or certified check payable to the order of The Power Authority of the State of New York for the Sum of $100,000.00.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: July 22, 1954

Soil Explorations and Foundation Investigations

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Daylight Saving Time, on July 22, 1954 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany. N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE BROOKLYN QUEENS EXPRESSWAY, PARK AVENUE VIADUCT, NASSAU STREET TO FLUSHING AVENUE, KINGS COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-69

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York

(b) Mr. M. E. Goul, District Engineer, Montauk Highway at Little East Neck Road, Babylon, Long Island, New York

(c) Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $57,000.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2850.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. Tallamy
SUPERINTENDENT OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: July 29, 1954

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

ST. LAWRENCE POWER PROJECT
TENDERS FOR THE RELOCATION
OF PROVINCIAL HIGHWAY NO. 2
CORNWALL TO MOULINETTE

Sealed tenders in triplicate, addressed to the undersigned and clearly marked "Tender for relocation of Provincial Highway No. 2, Cornwall to Moulinette—St. Lawrence Power Project", will be received up to 4:30 o'clock P.M., Eastern daylight saving time, Thursday, July 29, 1954 for the relocation of a 7¼ mile section of Provincial highway No. 2 from Cornwall to Moulinette.

The starting point of the road is on Provincial Highway No. 2 at Brookdale Avenue, just West of the Western Limits of the City of Cornwall.

The road is, in general, to be 36 feet in width at sub-grade and is to be constructed of suitable material, and surfaced with a 22-foot asphalt pavement.

Copies of tendering documents and drawings may be obtained on and after July 9, 1954, at the Office of The Director of Supply. H.E.P.C. of Ontario, 620 University Avenue, Toronto 2, Ontario. On payment of $50.00 per set, which sum will be refunded upon the return of each set of drawings and documents in good condition within 14 days after awarding of the contract. Tendering Documents and drawings may be inspected at the above office, and the commission's field office at Milles Roches, Ontario.

Each tender must be accompanied by a certified cheque for the sum of fifteen percent (15%) of the total tendered price. Provisions as to the return of cheque appear in the tendering documents.

The successful tenderer will be required to furnish a performance bond, in the form approved by the commission, and issued by a bonding company licensed as such by the Province of Ontario, in the amount of one hundred percent (100%) of the total tendered price.

The lowest or any tender will not necessarily be accepted.

ROBERT H. SAUNDERS,
HYDRO-ELECTRIC POWER
COMMISSION OF ONTARIO

Bids: July 27, 1954

Rt. 28-24 Connecting Link (1927) Rt. U. S. 22 (1953), Secs. 1A & 2A

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Route 28-24 Connecting Link (1927) Route U.S. 22 (1953), Sections 1A & 2A, from Straw Church to Route 24, Dualization, Pohatcong, Greenwich and Lopatcong Townships, Warren County. Federal Project No. I-179(5). Length 1.446 miles. The principal items of work are: Estimated:

Roadway Items

18,701 cu. yds. Roadway Excavation—Earth
11,200 cu. yds. Subbase
28,100 sq. yds. Penetration Gravel Surface Course, 2" thick
12,400 sq. yds. Gravel Base Course, 7" thick
21,690 sq. yds. Concrete Pavement Surface, Rein. 9" thick
236 lin. ft. Rein. Conc. Culvert Pipe
59 Inlets and Manholes
2,480 lin. ft. White Concrete Vertical Curb
1,020 lin. ft. White Concrete Sloping Curb

Bridge Items

637 cu. yds. Class B Concrete in Structures
61,255 lbs. Reinforcement Steel in Structures

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, July 27, 1954, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipts and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by P. L. 413, 82nd Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, Municipal Building, South Main Street, Phillipsburg, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of Ten Dollars ($10.00) which will not be refunded for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: July 20, 1954

Test Borings

CONTRACT 450

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M. Eastern Standard Time, on Tues, July 20, 1954, for Contract 450, for making test borings in the Towns of Deposit, Tompkins, Hancock and Colchester, Delaware county, Rockland and Neversink, Sullivan county, and Wawarsing, Ulster county, New York, all as set forth in the specifications. The borings, in general, will be made on land at such places as may be directed in the vicinity of the proposed site for the dam of the Cannonsville reservoir, along the proposed tunnel from that reservoir to the existing Rondout reservoir and along the proposed bypass tunnel at Rondout reservoir. The borings in the vicinity of the Cannonsville reservoir will vary in depth from less than 50 to about 250 feet. Along the proposed tunnels the borings to determine the elevation of bed rock will vary from about 30 to 250 feet in depth and those to determine the nature and condition of the bed rock from about 200 to 900 feet.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of ten thousand dollars ($10,000.00) for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawing, requirements as to surety, etc., can be obtained in Room 1316 at the above address, upon application in person or by mail by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4200) will be received at Denver, Colorado, until August 17, 1954, for furnishing two (2) 96-inch ring follower gates with integral hydraulic hoists, hydraulic gate hangers, gate position indicators, and one set of handling equipment for Palisades Dam, Palisades Project, Idaho. Delivery is desired within 420 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

Department of Commerce, Bureau of Public Roads, July 6, 1954. SEALED BIDS will be received at the office of the Bureau of Public Roads, First National Bank Building, Florence, Alabama, until 11:00 a.m., C.S.T., AUGUST 5, 1954, for the construction of Project 3H1, Part B, Natchez Trace Parkway, Choctaw County, Mississippi, 5.952 miles Grading, Draining, Gravel Base Course and other work from the Chester-Tomnolen Road northeasterly. The approximate quantities of the more important items are as follows: 293,700 cu. yd. Excavation, 210,000 cu. yd. Borrow, 38,000 tons Gravel, and 1,550 cu. yd. Cement Concrete. Minimum wage rates have been fixed as required by law. Plans, Specifications, and Proposal Forms are available upon request at the address given above, or Bureau of Public Roads, 1440 Columbia Pike, Arlington 4, Virginia. H. J. Spelman, Division Engineer.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4202) will be received at Phoenix, Arizona, until August 17, 1954, for furnishing labor and materials for Casa Grande Substation, Davis Dam Project, Arizona-Nevada. Location: near Casa Grande, Arizona. Principal items are: excavation 1,060 cu. yds; furnishing and placing gravel 240 cu. yds; treating areas with sterilization chemicals 1,000 sq. yds; concrete 65 cu. yds; erecting steel structures 45,000 pounds; furnishing and erecting prefabricated service building, lump sum; and other work. Completion time 250 days. For particulars, address Bureau of Reclamation, P.O. Box 392, Phoenix, Arizona; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4203) will be received at Albuquerque, New Mexico, until August 19, 1954, for furnishing labor and materials for El Vado Dam Rehabilitation, Middle Rio Grande Project, New Mexico. Location on Rio Chama, in Rio Arriba County, New Mexico. Principal items are: excavation 21,600 cu. yds; concrete 360 cu. yds; cleaning and painting steel face of dam; and other work. Completion time 835 days. For particulars, address Bureau of Reclamation, Albuquerque, New Mexico; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4201) will be received at Hot Springs, S. Dak., until August 3, 1954, for furnishing labor and materials for earthwork, 48-inch-diameter steel pipe, and inlet structure, Angostura Canal, Cheyenne River Siphon, Sta. 1179+87 to 1198+54.57, Angostura Unit, Cheyenne Division, Missouri River Basin Project, S. Dak. Location near Hot Springs, S. Dak. Principal items are: excavatoin for pipe trench, 3,960 cu. yds.; backfill of pipe trench, 2,200 cu. yds.; manufacturing and laying approximately 1,800 lin. ft. of 48-inch-diameter steel pipe; and other work. Completion time 240 days. For particulars, address Bureau of Reclamation, Hot Springs, S. Dak.; or Building 53, Denver Federal Center, Denver, Colo. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: July 22, 1954

Contracts No. 222, No. 222A and No. 222B Paving

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
Section 2—Portland to Augusta
(Augusta Extension)

Sealed Proposals will be received by the Maine Turnpike Authority for:

CONTRACTS No. 222, No. 222A and No. 222B
PAVING

at the offices of the Authority, 17 Bishop Street, Portland, Maine until 10:00 A.M. Eastern Standard Time on July 22, 1954 at which time and place the Proposals will be publicly opened and read.

The work will be performed either (a) under a single Contract No. 222 or (b) under two separate Contracts, No. 222A and 222B. Contract No. 222A will extend from the Androscoggin River in the City of Auburn near Mile 76 to a point in the Town of Litchfield near Mile 91. Contract No. 222B will extend from a point in the Town of Litchfield near Mile 91 to a point in the City of Augusta near Mile 106.

The principal items of work for Contracts No. 222A, 222B and 222 include:

	Contract No. 222A	Contract No. 222B	Contract No. 222
Borrow, Cubic Yards	21,248	23,207	44,455
Stripping Pits, Cubic Yards	2,000	2,500	4,500
Overhaul, Cubic Yard—Miles	20,000	25,000	45,000
Reshaping and Compacting Gravel Base Course, Square Yards	662,224	706,803	1,369,027
Aggregate for Bituminous Macadam Base Course, Tons	69,928	75,418	145,346
Asphalt Cement, Gallons	728,877	782,131	1,511,008
Bituminous Concrete Mixture, Tons	70,859	74,753	145,612
Aggregate for Bituminous Macadam Shoulders, Tons	28,246	30,090	58,336
Emulsified Asphalt, Gallons	484,815	516,468	1,001,282
Curbs, Walks and Dividers, Linear Feet	1,214	883	2,097
Steel Beam Guard Rail, Linear Feet	51,279	46,610	97,889
Wire Cable Guard Rail, Linear Feet	20,798	14,514	35,312
Topsoil and Seeding, Square Yards	899,580	766,162	1,665,472
Sodding, Square Yards	47,068	26,910	73,978
Preparation of Gravel Surface Course, Square Yards	38,870	56,677	95,547
Tar for Surface Treatment, Gallons	25,986	21,764	47,750
Cover Material for Surface Treatment, Tons	80	67	147

Plans and contract documents may be examined by prospective bidders during regular office hours at the offices of the Authority and at the offices of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y. The plans and contract documents and sets of cross-sections for each Contract may be obtained from the Authority, 17 Bishop Street, Portland, Maine, upon payment of Thirty-Five Dollars ($35.00) for each set which will not be refunded. Checks shall be made payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be accompanied by a certified or cashier's check payable to the Maine Turnpike Authority in an amount not less than five per cent (5%) of the Total Amount in the Proposal but not less than $500.00 nor more than $200,000.00.

If a bidder submits a Proposal for Contract No. 222, as well as a Proposal for Contract No. 222A and/or Contract No. 222B, one check based on the Total Amount in the Proposal for Contract No. 222 will be sufficient.

Proposals must be made upon the Proposal forms furnished separately by the Authority with the contract documents and must be enclosed in the sealed special addressed envelopes provided therefor bearing the name and address of the bidder and the number of the Contract on the outside.

Before the award of the Contract, any bidder may be required to show that he has the necessary facilities, experience, ability and financial resources to perform the work within the time required and to the satisfaction of the Authority.

The Bidder, to whom a Contract is awarded, will be required to furnish a Surety Corporation Bond, satisfactory to the Authority, on the standard Contract Bond form of the Authority, for a sum not less than the Total Amount of the Proposal.

The Authority reserves the unqualified right to reject all Proposals or to accept that Proposal which in its sole judgment will under all circumstances serve its best interests. The Contract will be awarded or Proposals rejected within thirty days after the date of opening Proposals, except in the event of default by a successful bidder the Authority reserves the right to accept the Proposal of any other bidder within twenty days after such default.

MAINE TURNPIKE AUTHORITY
Paul C. Thurston, Chairman
Portland, Maine
July 1, 1954

Bids: July 27, 1954

Route 6 (1927) Route U. S. 46 (1953), Sec. 1-N

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Route 6 (1927) Route U. S. 46 (1953), Section 1-N, Widening and Intersection Revision at Industrial Avenue, Borough of Teterboro and Township of South Hackensack, Bergen County. Length of project—0.641 miles. The principal items of work are:

Estimated:
5,242 cu. yds. Roadway Excavation—Earth
2,730 sq. yds. 8" Macadam Base Course
2,730 sq. yds. Pavement Type MA-BC-2, 3" thick
8,316 sq. yds. 10" Rein. Conc. Pavement Surface
1,176 lin. ft. White Concrete Vertical Curb
2,710 lin. ft. White Concrete Sloping Curb

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, July 27, 1954, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of Ten Dollars ($10.00) which will not be refunded for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

Bids: July 27, 1954

Route 3 (1927) Route 20 (1953), Sec. 4C

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Route 3 (1927) Route 20 (1953), Section 4C, from Route 4 to Tenth Avenue Traffic Circle, Widening and Dualization, City of Paterson, Passaic County. Federal Project No. U-139(2). Length of project 0.658 miles. The principal items of work are:

Estimated:
7,192 cu. yds. Roadway Excavation—Earth
2,982 cu. yds. Subbase
5,243 sq. yds. Bituminous Macadam Shoulder, 8" thick
9,394 sq. yds. Conc. Pavement Surface, Rein. 10" thick
625 lin. ft. 18" Rein. Conc. Culvert Pipe
3,574 lin. ft. White Concrete Vertical Curb
2,550 lin. ft. White Concrete Sloping Curb
2,394 lin. ft. Special White Concrete Curb
3,352 lin. ft. Wire Rope Fence

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, July 27, 1954, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by P. L. 413, 82nd Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 224 Broadway, Paterson 1, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour. Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of Ten Dollars ($10.00) which will not be refunded for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must me bade upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

OFFICIAL PROPOSALS

Bids: July 22, 1954

Contracts No. 217, No. 217A and No. 217B Bridges

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE

Section 2—Portland to Augusta
(Augusta Extension)

Sealed Proposals will be received by the Maine Turnpike Authority for:

CONTRACTS No. 217, No. 217A and No. 217B
BRIDGES

at the offices of the Authority, 17 Bishop Street, Portland, Maine, until 10:00 A.M. Eastern Standard Time, on July 22, 1954, at which time and place the Proposals will be publicly opened and read.

The work will be let either (a) under a single contract, Contract No. 217, which includes the construction of thirteen bridges along the route of the Maine Turnpike Extension between Mile 76 in the City of Lewiston and Mile 87 in the Town of Webster, and along the route of the Lewiston Spur, or (b) under two separate contracts, Contract No. 217A which includes seven of the above mentioned thirteen bridges, and Contract No. 217B which includes the remaining six bridges. Such bridge construction will include the erection of the steel superstructures, which will be fabricated and delivered F.O.B. cars at Lewiston, Maine, by others.

The principal items of work for Contracts Nos. 217A, 217B and 217 include:

	Contract No. 217A	Contract No. 217B	Contract No. 217
Structural Excavation—Earth, Cubic Yards	10,428	2,748	13,176
Reinforcing Steel Bars, Pounds	1,051,457	402,450	1,453,907
Concrete in Piers and Abutments, Cubic Yards	6,873	2,028	8,901
Concrete in Superstructures, Cubic Yards	1,717	1,230	2,947
Driving Steel H-Piles, Linear Feet	10,805	12,990	23,885
Cast-In-Place Concrete Piles, Linear Feet	6,720	4,050	10,770
Erection of Steel Structures, Pounds	2,626,998	854,740	3,481,738
Metal Handrail on Concrete Parapets, Linear Feet	755	2,467	3,222

Plans and contract documents may be examined by prospective bidders during regular office hours at the offices of the Authority at the above address and at the offices of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., and may be obtained from the Authority, 17 Bishop Street, Portland, Maine, upon payment of Thirty-Five Dollars ($35.00) for each set of Contract No. 217 covering the entire Project. The plans and contract documents need not be returned and the payment will not be refunded. Checks shall be made payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be accompanied by a certified or cashier's check payable to the Maine Turnpike Authority in an amount not less than five per cent (5%) of the Total Amount of the Proposal but not less than $500.00 nor more than $200,000.00.

If a bidder submits a Proposal for Contract No. 217, as well as a Proposal for Contract No. 217A and/or Contract No. 217B, one check based on the Total Amount in the Proposal for Contract No. 217 will be sufficient.

Proposals must be made upon the Proposal forms furnished separately by the Authority with the contract documents and must be enclosed in the sealed special addressed envelope provided therefor bearing the name and address of the bidder and the number of the Contract on the outside.

Before the award of the Contract, any bidder may be required to show that he has the necessary facilities, experience, ability and financial resources to perform the work within the time required and to the satisfaction of the Authority.

The bidder, to whom a Contract is awarded, will be required to furnish a Surety Corporation Bond, satisfactory to the Authority, on the standard Contract Bond form of the Authority, for a sum not less than the Total Amount of the Proposal.

The Authority reserves the unqualified right to reject all Proposals or to accept that Proposal which in its sole judgment will under all circumstances serve its best interests. The Contract will be awarded or Proposals rejected within thirty days after the date of opening Proposals, except that in the event of default by a successful bidder the Authority reserves the right to accept the Proposal of any other bidder within twenty days after such default.

MAINE TURNPIKE AUTHORITY
Paul C. Thurston, Chairman
Portland, Maine
July 1, 1954

OFFICIAL PROPOSALS

Bids: July 21, 1954

Pennsylvania Turnpike Commission Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a.m., Eastern Daylight Saving Time, the 21st day of July 1954, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract.

For the construction of structures and the grading, drainage and paving of the Turnpike Section 35-C, part of the Northeastern Extension of the Pennsylvania Turnpike in Worcester, Upper Gwynedd and Towamencin Townships, Montgomery County, Commonwealth of Pennsylvania, this section being situated as follows:

Beginning at a point approximately 50 feet northwest of the center line of Legislative Route 197 at Turnpike Station 277+60 in Worcester Township, Montgomery County; thence in a northwesterly direction 21,395 feet to Turnpike Station 491+55, at a point approximately 2162 feet northwest of the center line of Township Road 395 in Towamencin Township, Montgomery County, a distance of approximately 4.05 miles.

The approximate quantities of the principal items are as follows:

Class 1 Excavation	604,832 cu. yds.
Class 2 Excavation	15,058 cu. yds.
Class 2A Excavation	3,608 cu. yds.
Special Subgrade	172,745 sq. yds.
Reinforced Concrete Pavement	111,059 sq. yds.
Class A Concrete	1,854 cu. yds.
Class B Concrete	5,202 cu. yds.
Plain Steel Bars	588,729 lbs.
Fabricated Structural Steel	899,000 lbs.
Median Divider	20,683 lin. ft.

Copies of plans, specifications and other contract documents, including cross-sections, are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on July 7, 1954. Plans, specifications, cross-sections and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of fifty (50) dollars per set.

Plans and contract documents, for this section exclusive of cross-sections and specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of twenty (20) dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P.O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents, and cross-sections.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
29 June 1954

OFFICIAL PROPOSALS

Bids: July 27, 1954

Supply and Erection of Office Building

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO (H.E.P.C.)
ST. LAWRENCE POWER PROJECT
TENDERS FOR THE SUPPLY AND ERECTION OF A PROJECT OFFICE BUILDING AT CORNWALL, ONTARIO.

Sealed tenders, in triplicate, addressed to the undersigned, and clearly marked "Tender for project office building, Cornwall, Ontario," will be received up to 4:30 o'clock P.M., Eastern daylight saving time, Tuesday, July 27, 1954 for the above construction on a site approximately 2.8 miles west of Cornwall, Ontario on highway No. 2.

The Building will be of prefabricated steel frame construction with aluminum sheathing, approximately 56 feet wide and 260 feet long, with an area of not less than 13,600 square feet. Complete with concrete footings, sash, doors and glazing, but not including interior finish or services.

Tendering documents and drawings may be obtained on and after 12:00 o'clock Noon on Friday, July 9, 1954 at the office of the Director of Supply, 620 University Avenue, Toronto. On payment of $25.00 per set, which sum will be refunded on return of each set of documents and drawings in good condition. Documents and drawings may be inspected at the above office and the office of the Daily Commercial News, Toronto. The Toronto Builders' exchange, Ottawa Builders' Exchange and the commission's field office at Mille Roches, Ontario.

Each tender must be accompanied by a certified cheque for the sum of 15% of the tendered price. Provisions as to return of cheque appear in the Tendering Documents.

The successful tenderer will be required to furnish a performance bond issued by an approved bonding company in the amount of 100% of the tendered price.

The lowest or any tender will not necessarily be accepted.

ROBERT H. SAUNDERS
THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4207) will be received at Ogden, Utah, until August 24, 1954, for furnishing labor and materials for earthwork, concrete canal lining, and structures, gateway canal, station 45+19 to Station 448+35, Weber Basin Project, Utah. Location near Ogden, Utah. Principal items are 1,160,000 cu. yds. excavation; 7,280 cu. yds. concrete in structures; 16,000 cu. yds. concrete in canal lining; various items concrete pipe, steel pipe, radial gates, and metalwork; and other work. Completion time 1000 days. For particulars, address Bureau of Reclamation, 203 - 24th Street, Ogden, Utah; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

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Graduate Chemical, Mechanical, Electrical & Construction Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of construction, estimating materials and cost control, planning and refinery process work. Write giving full particulars regarding personal history and work experience. Please include telephone number.

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Civil Graduates of accredited U. S. colleges. Must have not less than the following experience:

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Designers—5 years responsible work on structural steel and concrete including work on long span bridges.

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Please mail complete resume together with salary required to:

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With at Least 5 Years Outside Field Experience, Age 30-40 Years for a Permanent Position in Contractor's Office in Central New York. Material Take-Off, Purchasing, and Scheduling for Heavy Construction Projects. Ability to Assist in Estimating Heavy Construction Work Desirable.

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SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED—ESTIMATOR for Plumbing, Heating, Air Conditioning & Process Piping. Must be able to do accurate take offs and have full knowledge of piping industry. Minimum of 5 years experience required. Location Central New York. Give full particulars with first reply. State education, experience, salary desired and date available. P-3115, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT — General Contracting firm in eastern West Virginia desires man with up-to-date experience in handling medium and large size building projects. The man we want must be cost conscious and have references to demonstrate that he has recently run jobs either in commercial or public building. Reply giving age, resume of experience and salary required. P-3155, Engineering News-Record.

WANTED: Instructor of Engineering Drawing and descriptive geometry. Salary up to $4,700 for 9 month period and assistant professorship for qualified person. M. E. graduate preferred. Dept of Engr. Drawing, University of North Dakota, Grand Forks, North Dakota.

MALE HELP Wanted: Experienced Structural Draftsman. Personnel—Box 1087, Charlotte 1, N. C.

CITY ENGINEER—City of Montebello, California (pop. 25,000) invites applications. California registration with one year of experience in municipal government in administrative capacity. Salary range—$629-$703. Maximum age 65. Apply by September 1, 1954 to Personnel Officer, City Hall, 140 North Sixth Street, Montebello, California.

ENGINEER—JR. Civil, for work in city engineering department; permanent positions, offering a variety of public works experience; good working conditions; possibilities for advancement; $84. to $95. week; send qualifications to Civil Service Commission, 260 City Hall, Cincinnati 2, Ohio.

WANTED—TWO Engineering draftsmen on sanitary and hydraulic work. Also two engineers qualified to make surveys and design water and sewer systems or treatment plants. —Morrell Vrooman Engineers, Trust Company Building, Gloversville, New York.

SALES ENGINEER, now calling on road building and construction trade to take on complete line of tractor replacement parts for engine and undercarriage, including track assemblies. P-3241, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT wanted by well established and expanding contractor in out-state Michigan. Experience on schools, industrial, commercial, and monumental buildings desirable. Give outline of education, experience, salary expected, and enclose snapshot if available. P-3247, Engineering News-Record.

EXPERIENCED STRUCTURAL steel checkers, detailers, and estimators for buildings and bridges. Advise experience and salary expected. Write to The Midwest Steel & Iron Works Co., P.O. Box 5384, Terminal Annex Station, Denver, Colorado.

OPPORTUNITY
For an energetic engineer with sales personality

25 to 35 years of age, for sales work with company operating on nationwide basis furnishing Concrete Form Engineering and Rental Service. General construction experience and some Engineering college training essential. Give full details in first letter to

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Must be familiar with shop costs of bridges and other heavy construction. Permanent position. Plant located in Western Pennsylvania. State qualifications in letter to

P-3140, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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for position of Technical Supervisor of Materials testing laboratory.

Must have at least 15 years engineering experience in soils, concrete and asphalt paving. Education and experience should be comparable to that required for Chief or Assistant Chief Engineer of Tests of one of the larger State Highway Departments. Furnish complete information and photo, if available. Replies confidential.

P-3085, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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Designing engineers, highways-thruways, bridges, airfields, drainage, sanitation, hydraulic, soil mechanics, structural.

Draftsmen, designers, to Project Manager.

Submit resume

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for refinery work. Must be fully experienced in all types of refinery construction. Graduate engineer preferred. Reply in detail. Location California.

P-3271, Engineering News-Record
1111 Wilshire Blvd., Los Angeles 17, Calif.

POSITIONS VACANT

CIVIL ENGINEER, for sales force, age 25-35, some construction experience. Background in soil mechanics and ground water preferable but not necessary. Permanent opportunity with long-established leading firm in interesting phase of foundation construction. Salary commensurate ability. Must be willing to travel, all expenses paid. Location, South Atlantic States. Replies held in confidence. P-9652, Engineering News-Record.

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SALES ENGINEER — Rochester, New York and Pittsburgh, Pennsylvania territories open with established national concern selling prefabricated metal products to engineering and construction markets. Positions are permanent and offer excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. Car furnished. Complete training program. Salary and bonus. RW-2259, Engineering News-Record.

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OVERSEAS PROJECTS Guide to most active constructors-engineers, oil co's., gov't & UN groups hiring for foreign projects. Send $1. Cove-McKane Int., GPO Box 126E, NY 1, NY.

POSITIONS WANTED

EXECUTIVE-SUPERINTENDENT 25 years experience in all phases of Industrial and General Construction. Buildings, Foundation work, Tunnels, Dams, Chemical plants, Sewage plants, Filtration plants, and Municipal installations. Desire permanent connection with progressive company. Location immaterial. Salary open. All replies answered. Reply Box PW-3203, Engineering News-Record.

STRUCTURAL ENGINEER Master Degree. Experience: 2 years designing of prestressed and reinforced concrete, ¾ year designing and detailing of structural steel, 2 years with General contractor as superintendent and estimator. Desire job with General contractor or with advanced consulting structural engineer in northern state. Box PW-3219, Engineering News-Record.

CONSTRUCTION EXECUTIVE: Graduate Civil Engineer, Registered Prof. Engineer, 20 years experience in Design, Estimating, Purchasing & Supervision of General Building Construction. Desires new connection where permanency and management participation is assured. PW-3201, Engineering News-Record.

ENGINEER WITH business administration course desires position with architects, contractors or financial firms. 20 years experience in construction, cost and estimates. Just returned after 3 years in Africa and Europe as cost engineer on large projects. Knowledge of several languages, single and free to travel. PW-3163, Engineering News-Record.

CIVIL—STRUCTURAL Engineer: thirty years diversified experience; planning, designs, specifications, supervision, office, field, steel, reinforced concrete, timber structures; power plants, oil refineries, airbases, site development, port facilities, hospitals, theatres, commercial sky scrapers. Includes six years overseas Europe, South America, Pacific. Foreign assignment preferred; available June 30. PW-3135, Engineering News-Record.

CONSTRUCTION ENGINEER: — Registered Civil Engineer, 15 years experience heavy construction. Now completing projects in West Indies, previous experience Middle East, Latin America. Desires permanent connection. Some Spanish, Arabic, French. Married status. PW-3144, Engineering News-Record.

CHIEF STRUCTURAL Engineer, 30 years, experience steel and reinforced concrete; 20 years design supervision. PW-3263, Engineering News-Record.

GENERAL OR Plant Manager—20 years experience in fabrication of steel for buildings, bridges, and special structures. Experience includes sales, engineering and supervision of engineering, production and field erection forces and purchasing. Excellent production record. Reg. Prof. Engr. Age 38. Desire position with progressive company in this field. PW-3239, Engineering News-Record.

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CHIEF ESTIMATOR—35 years practical experience, field and office, engineering education, progressive and receptive to new ideas, specializing in reinforced concrete masonry structures, mostly buildings, and with the ability, knowledge of costs and judgment necessary to meet present competition and stay in business. Expect to retire in five years and will train replacement in costs and business management. Now employed but wish to make change in locality with an aggressive responsible contractor. PW-3288, Engineering News-Record.

GENERAL CONCRETE Forman for building construction. 35 years of age, best reference on heavy construction. PW-3265, Engineering News-Record.

GENERAL SUPERINTENDENT 25 years experience, thorough knowledge all phases construction work. Consisting road, railroad, airport, heavy excavation, iron ore stripping, iron ore producing, dams, levees, large solid rock excavations, supervision and maintenance of all types of construction equipment and estimating. Available about July 15th. Will accept position anywhere, references available. PW-3281, Engineering News-Record.

PROJECT MANAGER or Contractor's executive available. Broad experience heavy construction and buildings. Thorough organizer. Sound knowledge of field supervision, estimating, cost control, purchasing, subcontracts. New York preferred. PW-2942, Engineering News-Record.

GENERAL SUPERINTENDENT. Over 25 yrs. heavy construction experience. Qualified to take full responsibility of projects of any type or size. Good background, know men and equipment, available any location immediately. PW-2466, Engineering News-Record.

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W-3198, Engineering News-Record
330 W. 42 St. New York 36, N. Y.

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FS-3275, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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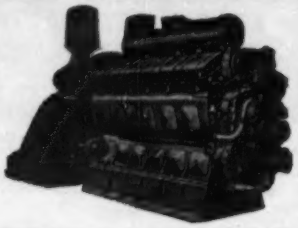

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1000	General Motors	16-567B	1440	720	300	General Motors	8-268A	450	1200
750	General Motors	12-567	1080	720	200	General Motors	8-268A	350	900
700	Worthington	EE-8	1000	327	150	Worthington	CC-4	225	450
500	General Motors	8-278A	750	720	150	Ingersoll-Rand	8-4	225	600
500	General Motors	8-567	720	720	150	Buckeye	80	240	600
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25 ton Wiley Steel Stifflog Derrick.
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Spans up to 200 feet
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Koehring (605), 1½ Cu. Yd.
36-Ton, clamshell, dragline, hoe. D-13000 A. Cat. diesel, 75 ft. boom, power, lowering-suspension-stop. Retractable A frame, long and wide mountings. Excellent condition, new 1952.

Insley, W.B., 1 Yd.
20-Ton crane, clam, dragline, complete 50 ft. boom, Cummins Diesel Model HIp 600, A frame, power boomstop, long-wide mountings, new '53.

Compressors, 210-185-125
On rubber; gas, exc. condition.

Wanted, Wrecking Ball
3,000 lbs.

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2108 Columbia Ave. WAbash 1567
Indianapolis, Ind.

PORTABLE STEEL BUILDING
BUTLER RIGID TYPE
NEW 1952 LOCATED NEAR AIKEN S C

82' WIDE & 240' LONG X 10' at the eave
Side walls and roof-galvanized panels
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25 ton Wiley Mdl. E Steel Stiffleg, cap. 25 ton with 60' boom.

20 ton American Terry Steel Erectors Guy Derrick, 110' mast, 100' boom.

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360 cu. ft. Ing. Rand Mdl. 75 MH #40T7833, direct connected 75 HP 3/60/440 motor, air receiver & starter. Wt. 7050#.

160 cu. ft. Davey, 35 HP 3/60/220, "V" belt drive, air receiver, starter.

105 cu. ft. Davey, 25 HP 3/60/220, air receiver, steel frame.

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1½ yd. Mdl. 78 Lorain Diesel, Ser. 11281, 150 HP Cat. D-13000 Diesel, 70-100' boom, jib.

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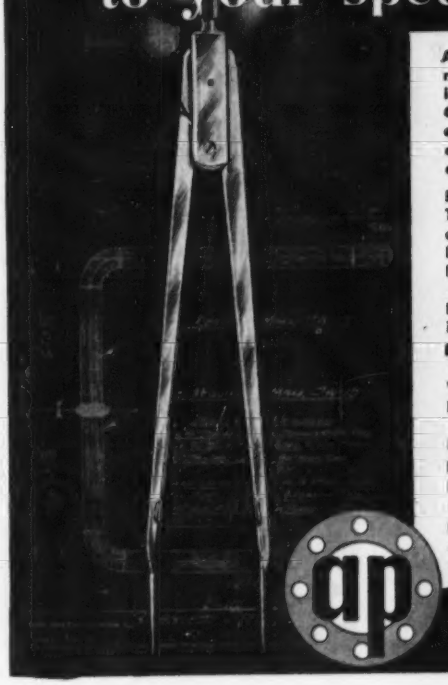

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"Holding Power" is an interesting new industrial film which tells the complete story of fasteners. It describes common, everyday fastener items, such as bolts, nuts, rivets, track bolts and spikes, and shows how important they are to our modern way of life. The film also includes roof bolts, high-strength bolts, oil-well sucker rods, and a wide range of ingeniously designed special bolts.

"Holding Power" is in color, with sound. It is on 16 mm film, and runs about 25 minutes.

The film is intended not only for those closely associated with the fastener field, but also for general-type audiences. There is no charge for this educational picture, except for return postage. If you would like to use a print, write fully to Room 1042, Publications Department, Bethlehem Steel Company, Bethlehem, Pa., preferably well in advance of your showing date.

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BETHLEHEM STEEL

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Electric impact tool

Operates from lightweight generator, drills 19 ft

The Homelite Corp., has acquired sole distribution rights to the German-made Bosch electric tools—a line of extremely portable rock drills, paving breakers and hammers.

All of these units employ high-cycle electric motors that are used to deliver up to 1,400 strokes per minute at the business end of the tool with an impact of about 1¼ tons.

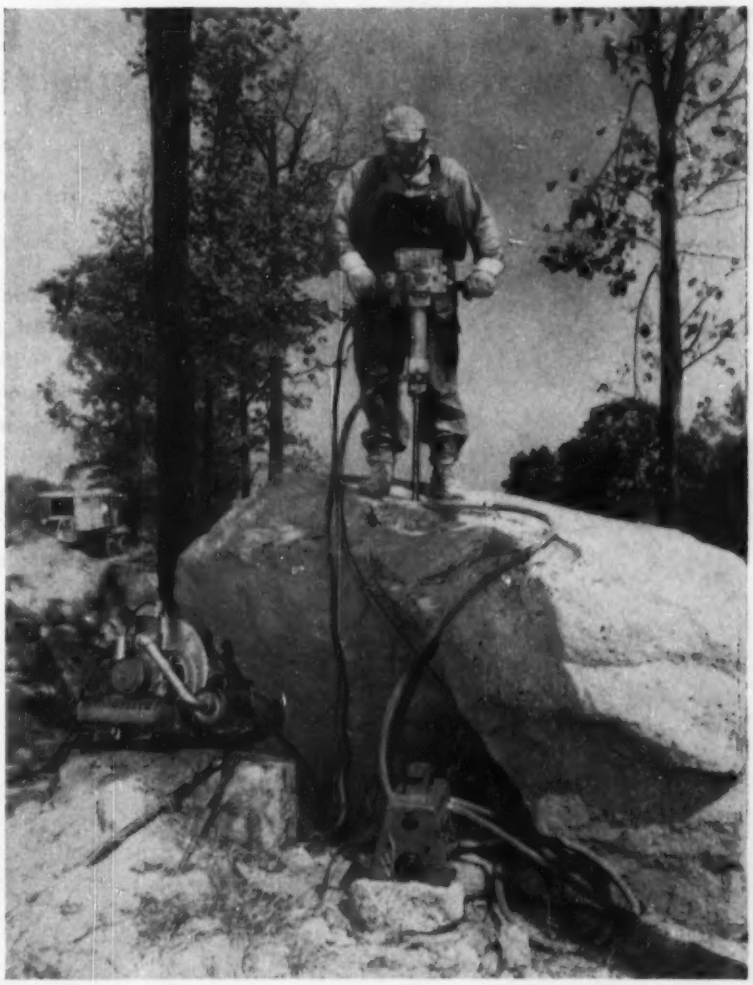
The rock drilling outfit shown consists of the tool itself, a blower unit and a portable generator set to supply the power.

The high-cycle electric motor is used in conjunction with a crank and a spring to impart the required reciprocating motion. A change-over gear in the lower portion of the tool gives the tool holder a partial turn after each impact to give a combination of vertical and radial motion.

The blower unit also is powered by a high-cycle electric motor and passes its compressed air to the work area through two hoses. One hose is attached to the tool—the air passes through the tool holder, the hollow boring bar and out through the blow holes in the boring crown. The second hose is placed to blow chips and dust sideways away from the bore hole. If desired, a suction blower can be used to remove the spoil.

The outfit is usable where water flushing is required, but it is advisable to interpolate a protection transformer between the hammer and other units.

Recommended for use with the Bosch tool is a 2,500-watt Homelite generator unit that can be used to operate both the high-cycle equipment and standard 110-v electric tools and floodlights. Weight of the generator is 138 lb, that of the drill is 65 lb. The 20-lb blower completes the portable drilling package.



According to the manufacturer, the drill will bore holes from ⅞ to ½ in. in diameter to a depth of about 19 ft.

Companion equipment in the high-cycle line—the paving breaker and builder's hammer—also use the Homelite generator. The paving breaker weighs in at about 64 lb. and is spring and crank operated. Insert tools available consist of a pointed mortise chisel, spade-shaped chisels, hollow spade-shaped chisels and an angular spade.

The builder's hammer is a real lightweight—14 lb.—and can be used with a large assortment of drills, chisels, calking tools, gouges, roughening bits, ramming and vibrating equipment. The number of strokes per minute are dictated by the nature of the material being worked and may vary between 1,000 and 5,000 strokes. Individual stroke forces can be more than a ton. The builder's hammer is also available with a 115-v universal motor to operate from standard house current. HOMELITE CORP., 22 RIVERDALE AVE., PORT CHESTER, N. Y.

A word about high cycle

High-cycle motors are extremely simple and rugged. They have no brushes, commutators or armature windings to wear out. Generally, they have more productive capacity per pound when compared with universal types, and the motor continues to run at constant speed even when fully loaded.

Use of the motor in the Bosch equipment permits considerable weight reduction and also high operating speeds. The motor in the rock drill, for example, turns at 12,000 rpm; that in the blower at 14,000 rpm—speeds impossible without the induction-type drive units.

Pelletizing simplifies rubber road construction

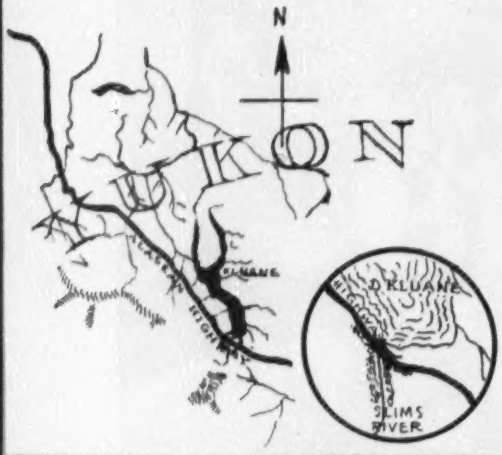
Rubber pellets—no bigger than pencil erasers—make every asphalt plant a potential rubber-road mix plant. Tossed into the mixing mill they are said to break down in 60 sec, spreading rubber evenly throughout the mix.

Previously the asphalt and rubber were premixed at a chemical plant and the hot mixture was shipped in insulated tank cars or trucks to the con-

(*Continued on page* 100)

EIMCO

EIMCO TRACTOR-EXCAVATORS ON SLIM'S RIVER IN THE YUKON



Along the rocky shore line of Lake Kluane riprap is being loaded into big trucks by an Eimco 105. This is a race against time to beat the spring thaw.

The contract is for building a bridge and approaches to the Slim's River crossing on the Alaskan Highway which runs west from Whitehorse to the southern edge of Lake Kluane then northwest to Alaska.

Working off the frozen surface of the lake in temperatures 30° to 45° below zero the Eimco 105 loads single pieces weighing 6 to 7 tons

into the trucks. Many times one rock will be a full load.

The huge pieces are used on the upstream side of the fill particularly near the bridge to protect the new fill from damage when the spring thaw starts breaking the ice in Slim's river and the flow starts toward the lake piling ice in against the fill.

Eimco 105 was selected for the loading job because of its easy operation and maneuverability. The 105 could also load large pieces that would have required much more expensive equipment. In addition the 105 could dig out the rock which usually freezes as soon as it falls to the ground after being blasted.

When your job requires fast, low-cost loading in rock, sand gravel or other material your best selection is the Eimco 105. Write for information.

Big trucks are loaded wtih chunks weighing 6 to 7 tons. Sometimes one rock is a load.

893

THE EIMCO CORPORATION

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(Above) Trucks are spotted and quickly loaded by Eimco 105 Tractor-Excavators. No time is lost shifting from forward to reverse or between speed changes on the 105.

(Above) Eimcos are easy to spot to the truck because one track can be run forward while the other is run reverse.

(Below) Large pieces can be loaded from the side or end of the truck. The large granite rock in the bucket weighs between five and six tons.

(Below) Digging in broken rock is easy for the 105. This machine is designed for rock digging and loading.

1 yard **Scoopmobile**

MODEL LD-5

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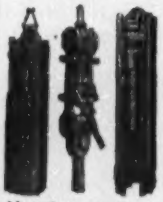

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Dept. E, Scranton 2, Penna.

struction site. This system meant high transportation costs, also limited the shipping range to a 24-hr trip from the plant. The new pellets cut shipping costs and eliminate the time-distance restriction.

The pellets, shipped in bags or drums, can be stored at the asphalt plant for ready use. Thus it is possible to use rubber paving on small jobs.

From 6 to 12 lb of the new pellets are added to a ton of asphalt, and the resultant mixture used as a wearing course. Cost of the new pellets is about 26 cents per lb—about a third below the cost of the previous material. NAUGATUCK CHEM. DIV., U. S. RUBBER CO., ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Concrete batching plant is portable and all electric

The Auto-Crete is the name given a new self-contained, portable concrete batching plant. According to its backers, five years of field testing on Arizona projects have shown the unit to have a high production rate with a small crew, a low cost of operation, and high accuracy of control.

The Auto-Crete has three self-contained storage bins for 12 tons each of sand and gravel and 176 cu ft of bulk cement. Sand and gravel are loaded into the mixer skip on conveyor belts; cement is moved into the skip by a worm conveyor.

Aggregate is electrically weighed on a series of weigh-beams then lifted into the mixer. One man is required to operate push-button controls aboard the mixer; another man operates a skip loader to keep the bins stocked. Production for the machine and two-man team is rated at 125 to 150 cu yd of concrete a day.

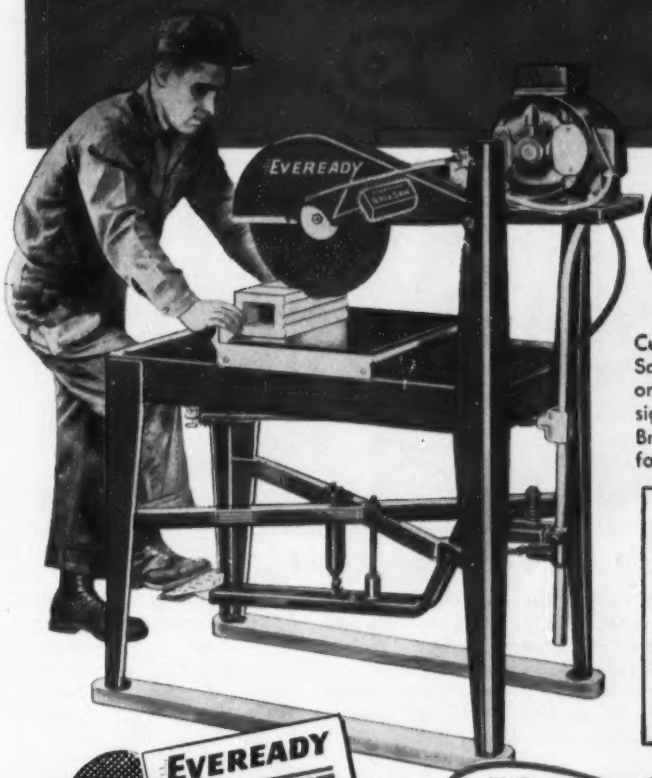
A gasoline engine generating unit provides electric power for all operations of the batching plant. The 25-kw output also can be used for other equipment such as a light plant when the batching plant is not in operation.

The equipment measures 34½ ft long, 13 ft 4 in. high and 8 ft wide. Rubber mounted, the unit is designed to be towed—legally—by any standard 1½-ton truck tractor. Six screw jacks are used to support the plant when it is set up at the job site.

Since the Auto-Crete is designed to effect savings through the use of bulk cement, a storage silo with a 350 bbl capacity has been designed for use in conjunction with it. THE AUTO-CRETE CO., 612 SECURITY BLDG., PHOENIX, ARIZ.

(*New Products continued on p. 102*)

EVEREADY BRIKSAW



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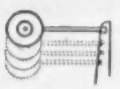

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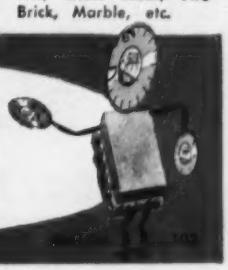

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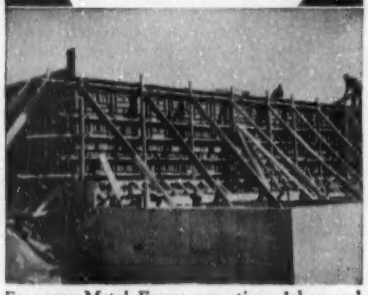

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metal forms for concrete construction

Sheathing gets a weatherproof coat

New temlock sheathing has an asphalt coating on the exterior side that sheds rain during installation, permitting the builder to resume work immediately after the rain ceases. In addition, the use of a new binder is said to provide fuller coating of the fibers and therefore make the finished sheathing stronger and tougher. Although the rain shield finish prevents dampening of the sheathing, it is said that moisture from inside the house is allowed to pass through. Price of the product remains unchanged. Armstrong Cork Co., Lancaster, Penna.

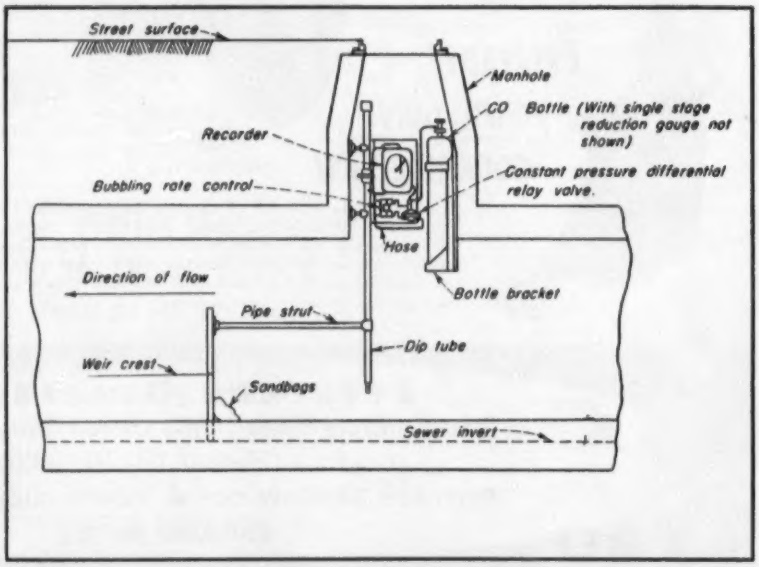
CO_2 used to record sewage flow

Labor costs, hazards and the time required to make dry weather sewage flow measurements are said to be reduced by a new instrument. Basic components of the new measuring instrument are a tank of CO_2 gas, a metal dip tube and a recorder or meter box—all of which can be transported and installed by two men.

The tank of gas and recorder are secured to the manhole walls of the sewer where the measurements are to be made. The dip tube is connected through the recorder to the gas cylinder and extends down into the sewer water.

In operation, the gas passes from

(Continued on page 104)



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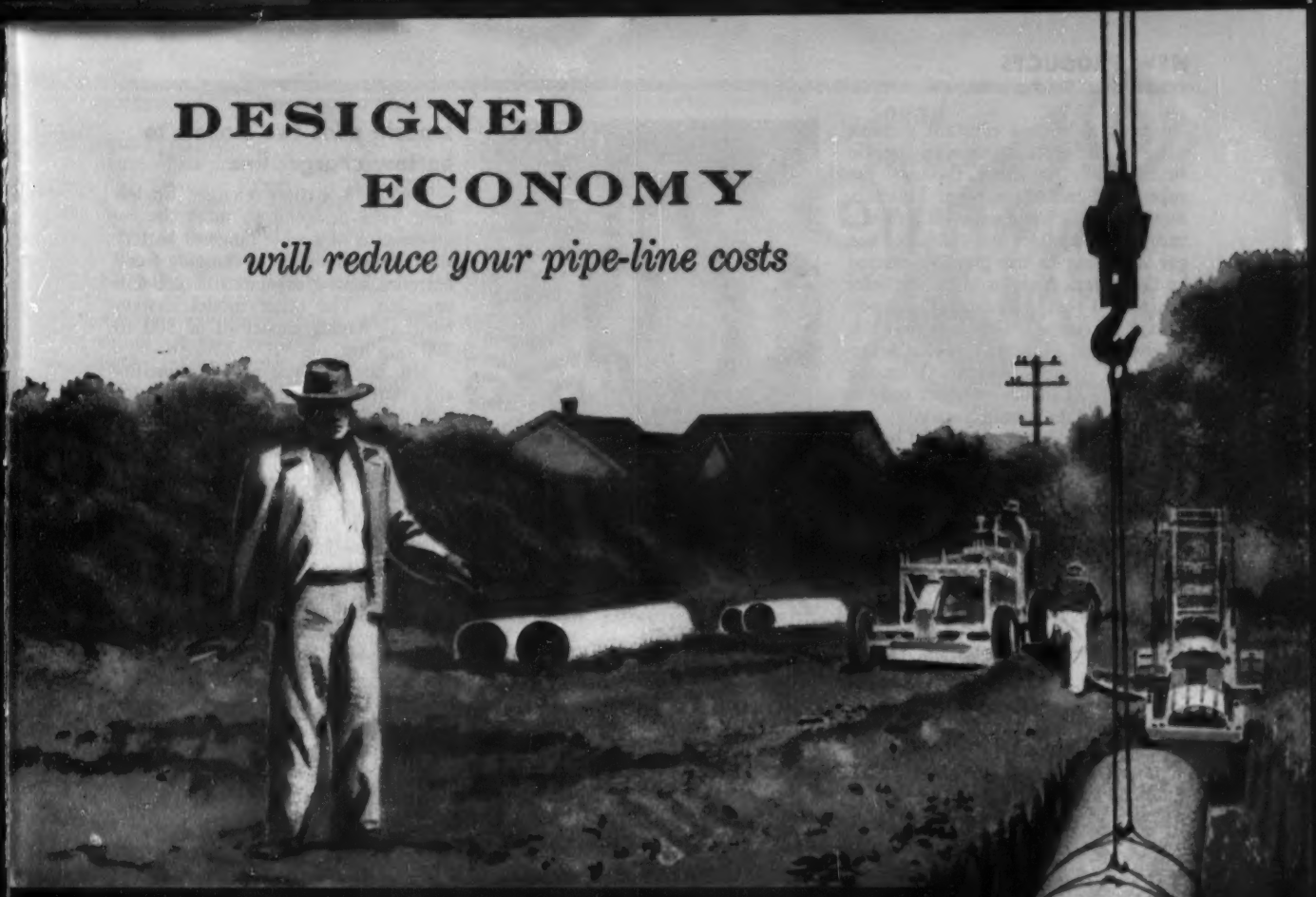

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the tank through a constant pressure valve to the recorder then to the dip tube, finally escaping through the submerged end of the tube. This submerged end is equipped with a needle valve that regulates the escape of the gas according to the pressure exerted by the water. A stylus in the recorder is actuated by the amount of gas permitted to escape. The instrument is designed and calibrated so that measurements recorded by the stylus are in readings of inches—further conversion of the data is unnecessary.

The instrument was designed by engineers of General Industries, Inc., Philadelphia and manufactured by Fischer & Porter, Hatboro, Pa.

Aluminum foil tape makes fast insulation joints

A new aluminum foil pressure-sensitive tape has been developed for industrial sealing, splicing, conduction and heat reflecting jobs. The tape—Scotch brand aluminum foil tape No. 425—is made with a dead soft aluminum foil backing coated with a high-tack thermosetting type adhesive. Total thickness is 5.25 mils.

Its average property values include tensile strength of 32 lb per inch of tape width; elongation of 15 per cent at breaking point; adhesion of 60 oz per inch of tape width; and a moisture-vapor barrier of 0.1 grams per 100 sq. in. per 24 hrs at 100 F.

Test users report that the tape's largest single potential appears to be in sealing butt splices of foil-backed insulation batts. It is being made available in ½ to 24-in. widths on 60-yd rolls. Minnesota Mining and Mfg. Co., 900 Fauquier St., St. Paul 6, Minn.

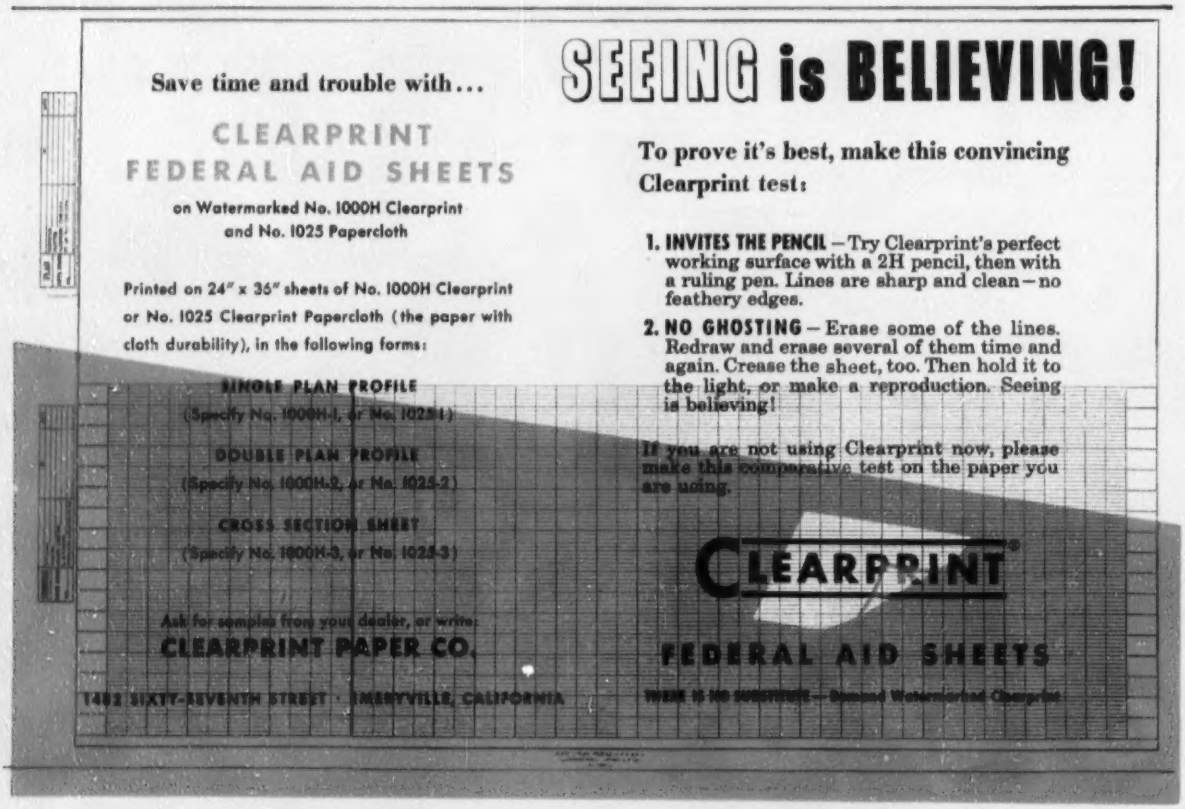
Lincoln adds two models to battery charger line

Two new battery charger models have been designed to meet the requirements of a wide range of battery sizes. One model is for charging 6-cell batteries having capacities of 250-650 amp hrs. The other model charges batteries having capacities of 300 to 700 amp hrs.

The rate of charging is automatically controlled by the motor-generator type design to match the voltage curve of the battery being charged—the charging rate is decreased as the operation nears completion. A fully discharged battery can be brought up to full strength in about 8 hrs.

The taper-charging characteristic is said to improve battery operating efficiency, increase battery life and remove the danger of overheating. Another precaution against overheating is obtained through the use of a thermostatic control in the battery being charged. When excessive temperatures are approached the charger shuts off automatically and restarts only after the battery has cooled.

In case of power supply interruption, the charger is disconnected from the line and the charging circuit is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New Products briefs . . .

• **Burton shores**—Burton's all steel shores are now available through the Patent Scaffolding Co. distribution system. Designed to be carried easily, installled and adjusted by one man, the Burton shore features a slotted adjusting pin guide and permits addition of 8-in. or 14-in. U heads without requiring dismantling. For information, request Bulletin M-2 from The Patent Scaffolding Co. Inc., 38-21 12th St., Long Island City 1, N. Y.

• **Air-conditioning door**—A new 1⅜-in. steel flush interior door developed expressly for use in centrally air conditioned and perimeter heated homes has been developed by the Building Products division of the American Welding & Mfg. Co., Warren, Ohio. Designed to allow the proper air flow between connecting rooms as required by central air conditioning installations, the door is said to permit closed-door privacy without impairing or disturbing the heat balance of the system and eliminates the need for return air ducts. Five standard sizes are available from 2 ft by 6 ft 8 in. to 3 ft by 6 ft 8 in. with effective grille areas of 89 sq in. to 136 sq in., respectively. Panels are reinforced at approximately 17-in. centers alternating on front and rear panels. An emulsion-type coating applied to the inside of the panels, bonded permanently to the parent metal, provides sound-deadening qualities.

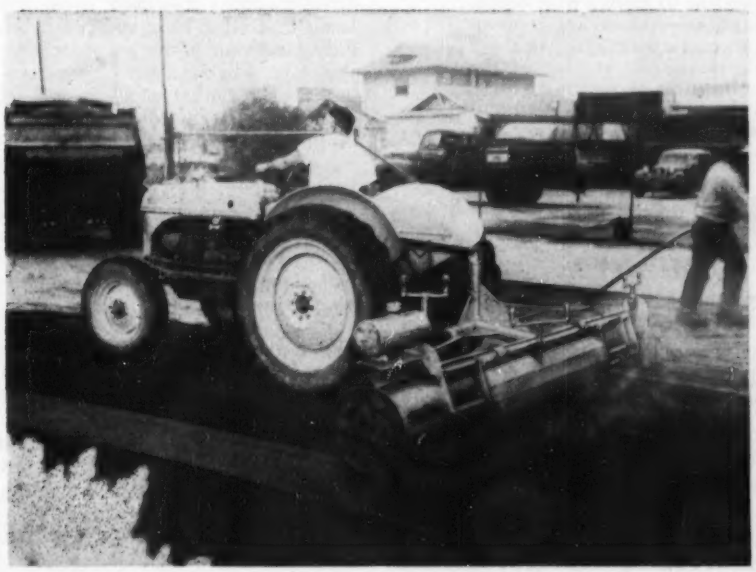
Spreader operates fast

According to the manufacturer, a new material spreader, the Essick Model 710, includes design features that tend to reduce costs greatly and time required to do a finish paving job.

The machine is furnished with two steel skids and a roller. The two skids are 8 ft long and can be attached to each end of the adjustable spreader blade to serve as a guide for leveling the base grade.

When placing the paving material, the roller replaces one of the steel skids. At one edge of the area to be paved, a narrow track of material is raked to the thickness specified for the finished surface. The roller rides on this track and the spreader blade is leveled to proper clearance by adjusting the skid on the opposite end. Both skid and roller are adjusted by a double-handled screw jack on each end.

The roller is furnished with a fluid tank and sprinkler system to keep the black-top materials from sticking. The blade is extensible from 7 to 10 ft and held in adjusted position by set screws. Telescoping braces on the front of the spreader are designed to add rigidity to the adjustable end pieces. Essick Mfg. Co., 1950 Santa Fe Ave., Los Angeles 21, Calif.



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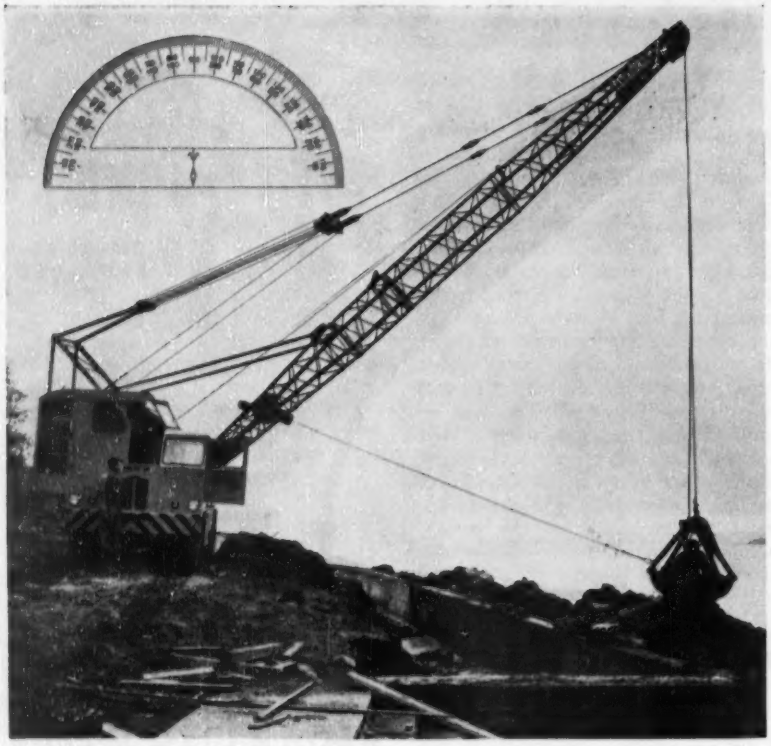

New Angle On Cutting Costs

It was a "problem" job. To keep costs in line on a seawall project, the contractors needed: first, a powerful machine with great stability that could operate on a mushy, tilting shoreline; secondly, a versatile machine that could handle a variety of tasks under these difficult conditions.

The American 375 Truck Crane meets these needs. Its rugged, built-in stability enabled the American machine to work at a low boom angle way out over the shoreline at Lake Washington, east of Seattle. The high adaptability of the American 375 enabled it to handle with ease and efficiency such jobs as excavating the footing site, setting and removing forms, and clamshelling sand from the old shoreline to form a new beach.

On projects across the nation, American products are stepping up production and cutting costs for contractors. Many of these projects are described in factual, on-the-job stories in the American Crosby Clipper. If your business is such that these stories are of interest to you, mail the coupon below. You will receive the Crosby Clipper regularly without charge.

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PUBLICATIONS

Water, sewage and trade waste equipment—A 6-page color brochure describes a line of water, sewage and trade waste treating equipment. In Bulletin AH-442 numerous installations of the company's circular clarifiers are illustrated and the various applications of this equipment are discussed. Also included are several typical flowsheets and a brief description of auxiliary apparatus such as digestors and flocculating equipment. HARDINGE CO., INC., YORK, PA.

Air conditioners—A 6-page technical bulletin describes the 1954 line of USAIRco packaged air conditioners. The bulletin, No. 77-5, provides construction details, specifications and performance ratings of the unit. UNITED STATES AIR CONDITIONING CORP., 3300 COMO AVE., S.E., MINNEAPOLIS 14, MINN.

Concrete mixers—An 8-page bulletin is used to show the types of trucks that can be mounted under the new Le Roi-Transo line of mixers (from 3 to 6½yd). Specifications are included for all seven models and complete specifications are shown along with information on capacities, water systems, power units, and weights. LE ROI CO, 1706 S. 68TH ST., MILWAUKEE 14, WIS.

Motor pumps—"How to Select a Motorpump" is the title of a slide film in booklet form. The booklet gives a brief description of what a centrifugal pump is and how it works, and then points out the various factors such as quantity, pressure, friction losses and heads that must be considered in selecting a pump to meet a specific installation. The next step is the presentation of a typical problem and its solution, by means of material shown on previous pages, such as charts and curves of various forms. Finally the booklet tells the material recommended for various pumping installations and gives actual installation views. Form 7123. INGERSOLL-RAND CO., CAMERON PUMP DIV., 11 BROADWAY, NEW YORK 4, N. Y.

Motor grader—A new catalog covers the mechanical features and specifications of the Allis-Chalmers Model D motor grader. Job application photographs are used to tell the story of the potential usefulness of the grader, and illustrations include cutaway views of the complete Model D and its 50-hp engine. ALLIS-CHALMERS TRACTOR DIV, MILWAUKEE 1, WIS.

Anti-slip metal treads—A new booklet entitled "How to Make Stairs and Walkways Safe" has been published to acquaint building owners, installers and others on the fundamentals of stairway safety. In addition to general information on installation and repair of stairways and walkways, the 24-page booklet describes the various types of safety treads made by the manufacturer. WOOSTER PRODUCTS INC., WOOSTER, OHIO

Jacks—A new Duff-Norton jack manual is now available. The 40-pager explains how to choose the right jack for the job, lists the types of ratchet, screw and hydraulic jacks—from 3 to 100-ton capacities—and gives specifications for each model. Catalog 204. DUFF-NORTON MFG. CO., P. O. BOX 1889, PITTSBURGH 30, PA.

Rolling doors—Kinnear rolling doors are described in a 32-page catalog recently issued. Products included are steel rolling service doors, fire doors and shutters, Bifold doors, Rolltop sectional overhead doors, steel rolling doors and special doors and counter closers. Each door type is thoroughly covered and specifications are included. THE KINNEAR MFG. CO., FIELDS AVE., COLUMBUS 16, OHIO

Bonding additives—A new 8-page brochure gives detailed information on a recent technological development in bonding additives for asphalt road paving. The Pave brochure includes comparative test data on the effect of the additive on heat stability of asphalt. CARLISLE CHEMICAL WORKS, INC., READING, OHIO

Concrete pressure pipe — "Concrete Pressure Pipe Laying Instructions" is a pocket size 16-page booklet. It contains technical data boiled down to practical applications, and each page carries a separtae step in pipe-laying installation. The manual contains data on various sized pipes, and tells how to dig the trench, how to handle the pipe, easy steps in making the joint and how to bed the pipe. Furnished also is a check list of equipment and supplies needed for the job. PRICE BROS. CO., 1932 E. MONUMENT AVE., DAYTON 1, OHIO

Heat exchangers—A 36-page catalog, Form 533012, covers the complete line of commercial and industrial heat exchangers manufactured by TACO HEATERS, INC., 137 SOUTH ST., PROVIDENCE 3, R. I.

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EDITORIALS

Here we go again

CHARGE IT TO politicians, economists, labor leaders or business management—whomever you choose—but the inflation pump is being primed again.

The Federal Reserve Board has lowered its reserve requirements, thus increasing the supply of loanable money, and furnishing pressure for lower interest rates. In addition, industry is granting wage increases that can only result in higher selling prices. The auto industry was first, but the steel industry, following suit last week, brought the consequences closer home to construction. Immediately after the steel wage increase, steel prices were advanced $3 a ton. Last year, as a result of a similar wage increase, steel prices rose $4 a ton, so that still more costly steel may be in prospect if demand for steel should increase.

The significance of higher steel prices is, of course, that they are so quickly and widely reflected in the products that construction needs. Add to this the fact that the prices of other materials—cement, lumber and brick, for example—are already higher than last year and that construction wage rates are 4 to 6% higher, and the picture of costlier construction is even more clear.

Higher costs for construction do not accord with the industry's objectives nor with its long-term well being. Yet it should not be overlooked that the immediate tendency of rising costs historically has been to stimulate contract awards, as hopes for lower costs are seen receding. When this is coupled with an increasing supply of money seeking investment, the elements are present to push construction volume considerably higher.

Whether one abhors or welcomes more inflation we seem destined to have it. More construction is a likely accompaniment. And since it is certain to be progressively costlier construction, the sooner jobs that are ready are put under contract the better.

Value received for flood control

WITHIN TWO WEEKS, two outstanding examples of the value of flood control investments have been spread on the record. How indelibly only time will tell, for the memories of taxpayers, lawmakers and editorial writers are tragically short when expenditures for flood control are proposed. Wasteful, pork-barrel, unnecessary are some of the adjectives applied when the rivers are running dry. When they overflow, soaking up millions of dollars in losses and snuffing out lives, it is another story. Probably this cycle of opinion will continue to be repeated, but at least its fallacy can currently be highlighted by the experiences at Des Moines, Ia., and on the lower Rio Grande.

In 1947 Des Moines experienced its most disastrous flood, when the Des Moines River crested at 26.15 ft. Two weeks ago a crest of 30.19 ft figuratively only wet the city's feet as heightened, strengthened levees guided the high water downstream. Possibly, even, the levee investment was paid off in this one flood. And had proposed reservoirs up and downstream been built, other flooded areas would have reaped like benefit.

But it was on the Rio Grande that the most spectacular showing of flood control occurred. Considering the great loss of life and widespread damage along the river between Del Rio and Laredo, Tex., in the greatest flood in the river's history, it may seem strange to use this disaster as an example of wise and good flood control. But the damage that resulted in this stretch of river, where control measures had not been undertaken, gives added emphasis to the protection that was afforded the lower Rio Grande by the great, new Falcon Dam, which cost $33 million without the power facilities.

Seldom in history has a major flood control structure been tested so fully so soon after it was completed. Seldom either have designers (in this case engineers of the International Boundary Commission, headed on the U. S. side by Commissioner Lawrence M. Lawson) been able to prove so quickly and conclusively that their designs were right.

Falcon Dam, a 150-ft earthfill some five miles long, had been planned to store 4,000,000 acre-ft of water in its reservoir. Its spillway was made ample to pass 456,000 cfs. And it had been estimated that all of the water brought down by the then highest flood of record (1932) could be stored in the reservoir (on top of the storage reserved for irrigation) with the spillway operating at only 60,000 cfs. Last week's much greater flood was handled with equal facility—and even with greater margin since the reservoir fortuitously was nearly empty. But even had its dead storage and irrigation volumes been full the million or so acre-feet reserved for floods would have slowed the flow until the spillway could have doled it out downstream in quantities that would have been relatively harmless.

Falcon Dam proved itself to be a useful public investment and a credit to its engineers and builders. The tranquility of the city dwellers and farmers in the rich orange-growing and produce-raising region below the dam—sure not only of their safety but assured of irrigation water next fall—provided a striking contrast to the frightened and helpless people above who could count the damage from the rising waters even before they arrived. This contrast bespeaks the necessity for supporting the International Boundary Commission in its plans for other Rio Grande dams and channel rectification from Laredo to Ft. Quitman. And it focuses attention everywhere on the real value of flood control and the need to accord it the status of a worthwhile national investment and not just a convenient means of spreading money around among congressional constituencies as it is too frequently charged with being.

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To get steel good enough for these bearings, we make our own—Timken fine alloy steel. To provide wear-resistant surfaces over shock-resistant cores, the bearings are case-carburized. They're hard on the outside, tough on the inside.

There's less power loss in the wheels because the true rolling motion and smooth surface finish of Timken bearings practically eliminate friction. And because they keep housings and axles concentric, Timken bearings make closures more effective. Lubricant stays in; dust, dirt and moisture stay out. Maintenance time is reduced, longer bearing life assured.

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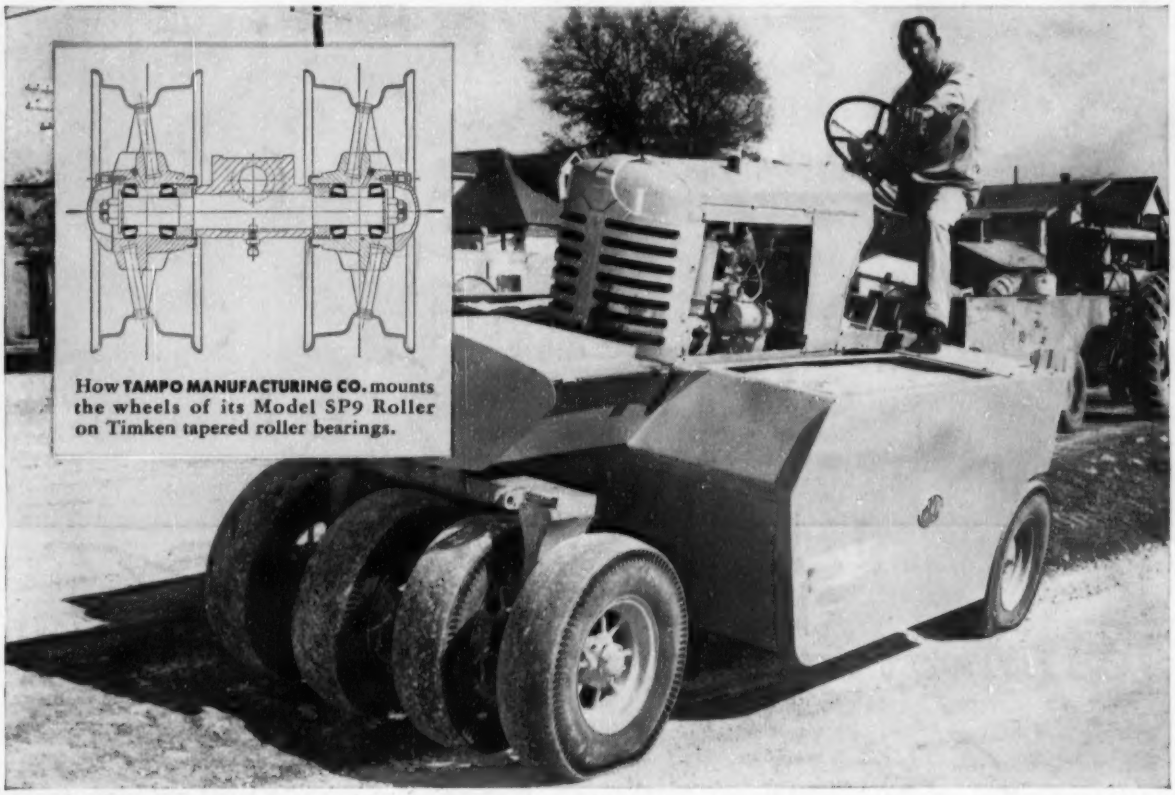
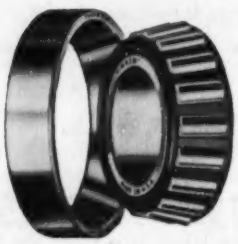


How **TAMPO MANUFACTURING CO.** mounts the wheels of its Model SP9 Roller on Timken tapered roller bearings.



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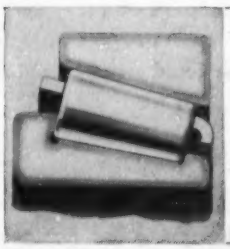

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